2009

Technical Assignment II

Marymount University 26th St Project
Arlington, VA

10/28/2009

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Construction Management
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Executive Summary

Technical Assignment II involves an investigation into key features of the Marymount University 26th Street Project that affect the execution of the project. Areas of investigation include the project schedule, site layout planning, estimated structural system costs, and general conditions costs. Additionally, the discussions regarding critical industry issues presented at the 2009 PACE (Partnership for Achieving Construction Excellence) are summarized.

The detailed project schedule for this technical report was generated from actual project durations and provides and accurate representation of how the project will actually be built. The schedule portrays key project milestones and the activities leading up to those milestones. The first major project milestone is occurs when the Notice to Proceed is granted on February 2, 2009. This will provide approximately twenty one months to complete both the academic facility and the residence hall. The next major milestone, topping out, will occur in October of 2009, as the structures for both towers are sequenced to be constructed at the same time. The precast enclosure system will provide the academic facility and the residence hall with a water tight status in December of 2009, and February of 2010, respectively. This water tight status will allow all of the interior and finishing activities to take place. Upon completion of these activities, Marymount University will achieve its final milestone, substantial completion, in early September of 2010.

The critical phases of construction that have been identified for this project are excavation, superstructure, and interior finishes. The site layout plans provide a clear visual representation of locations of the key features during each particular phase of construction. The individual site layout plans were developed to create the most efficient site as possible, while takings into account that the site is constrained on all three sides by roadways and there is minimal room for storage.

The estimated cost for the entire structural system is $8,059,795.31, which is approximately 19% of the overall project cost. The estimate takes into consideration the costs of material, labor, and equipment required to construct the concrete superstructure. The resulting estimate cost is fairly accurate as it is within 2% of the actual cost of the structure.

The total cost for general conditions were estimated to be $2,765,969.00, which accounts for approximately 7% of the overall project cost. The cost was broken down into 3 categories; project personnel, jobsite operations, and safety, clean-up, and health. Roughly 61% of the total costs for general conditions were from the salaries of the project management and site supervision teams.

In the last section of this report, a summarization of the 2009 PACE roundtable meeting is provided. The theme for this year's discussion was "Creating Opportunities."

1.0 Detailed Project Schedule

In order to develop a detailed project schedule for the Marymount University 26th Street Project, it was important to establish some important dates and activities that needed to take place in order for the project to be completed. One of the first date requirements set by the university was a substantial completion date no later than September 2, 2010. Refer to Figure 1. For a list of the important milestone dates found within the schedule.

Marymount University Milestones	
Milestone	**Date**
Notice to Proceed	2/2/2009
Structure to Grade	8/24/2009
Structure Topping Out - Academic	10/7/2009
Structure Topping Out - Residence	10/16/2009
Building Dry - Academic	12/30/2009
Building Dry - Residential	2/19/2010
Substantial Completion	9/2/2010
Final Completion	10/1/2010

Figure 1. Project Milestones

Once the Notice to Proceed was provided on February 2, 2009, approximately twenty-one months were available to complete four levels of underground parking, a 52,000 square foot academic facility, and a 77,000 square foot residential facility.

Upon mobilization, construction activities began with clearing the site, installing the excavation support system, and excavating roughly 80,000 cubic yards of soil. Following the excavation activities, all foundation-to-grade activities will fall directly in line with the critical path. These activities include forming, reinforcing, and pouring all of the concrete mat foundations, spread footings, foundation walls, shear walls, columns, and floor slabs. The structure-to-grade is scheduled to be complete August 24, 2009.

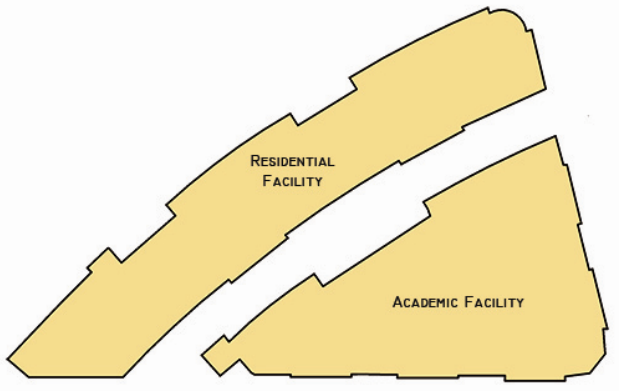


Figure 2. Building Footprint

Once the structure reaches grade, it will be separated into two towers, as shown in Figure 2. One tower will be an academic facility, while the other tower will be a residence hall. The structures for both towers are sequenced to be constructed at the same time and are scheduled to top-out in October of 2009. While work is taking place on the structure above grade, interior work below-grade will be going on simultaneously. This work includes framing, MEP rough-ins, equipment installation, hanging drywall, and finishes.

Both the academic facility and the residence hall will be enclosed with precast architectural panels and aluminum framed windows. It will be sequenced in such a way that an entire building elevation will be wrapped with the precast panels, with window installation following closely behind. This enclosure system will provide both the academic facility and the residence hall with a water tight status in December of 2009 and February of 2010, respectively.

At the time the work is taking place outside to enclose the building, simultaneous work inside of the building includes framing and MEP rough-ins. The sequence will follow a bottom-up methodology, with all work starting at the lowest level and moving up through each of the buildings. Once each structure achieves its individual water tight status, finish work can begin. This work involves hanging drywall, painting, various interior finishes that require a control environment.

Other major component remaining in the project schedule are testing and inspections. This involves testing all of the MEP systems and equipment, while inspecting all of the finish work. Again, this follows that bottom-up sequence, starting at the ground floor level and moving up though the building. With the completion of satisfactory testing and inspections, the Marymount University 26ht Street Project will achieve its final project milestone, substantial completion, in early September of 2010. This milestone will permit the Marymount University students and personnel to inhabit their new facilities just in time for the new academic year.

Please refer to Appendix A. for the detailed project schedule.

2.0 Site Layout Plan

Excavation

The excavation phase of the Marymount University 26th Street Project primarily consists of clearing of the existing surface parking lot, installing the support of excavation system, and excavating 80,000 CY of soils, all of which are to be hauled to off-site locations. The project site is triangular in shape and bordered by roadways on all three sides. A site fence runs along the perimeter of the site and up against the street on both 26th Street and Yorktown Boulevard, while a covered walkway serves to protect the sidewalk which parallels Old Dominion Drive.

The workforce at this state of the project is minimal, consisting of only 20-30 workers on site each day. This will require minimal tool storage and only two office trailers on-site. James G. Davis Construction has chosen to locate their office trailer at the corner of 26th Street and Yorktown Boulevard. This location will allow the site supervision team to monitor the entire project site from the confines of the office trailer.

The depth of excavation will require the use of a sheeting and shoring system for excavation support. The main components of this system include soldier piles, lagging boards, and tiebacks. This excavation support system will require a material storage, a mobile crane for driving the piles and a mobile drill rig for drilling and grouting tiebacks. Other on-site equipment includes an excavator, a track-loader, and a cycling fleet of dump trucks. All of this equipment is able to access the area of excavation with a ramp that allows for two-way flow of traffic.

Please refer to Appendix B. for a site layout plan for the excavation phase.

Structure

This phase of the project will require the addition of two tower cranes to the project site. The cranes will be utilized to construct the concrete structure and unload materials and equipment associated with the structure. The crane servicing the west half of the site will be a Peiner SK-415, providing a total reach of 196'-10"and a lifting capacity of 14,315 pounds. The crane servicing the east half of the site will be a Peiner SK-315, providing total reach of 196'-10" and a lifting capacity of 10,100 pounds.

In order to make room for the concrete structure and the formwork used to create the structure, all of the temporary facilities will be move to the perimeter of the site. More office trailers and storage facilities will be required on-site, as this phase of construction will have the highest quantity of workers.

Additional trash receptacles and portable toilets will be brought in to accommodate the workforce.

Please refer to Appendix B. for a site layout plan for the structure phase.

Interior Finishes

The site plan for the interior finishes stage of construction is the least congested of all previous phases of construction. One major changes is that the tower cranes are removed and replaced with material hoists. One hoist will provide each tower with vertical transportation of materials and equipment from the grade level to the roof level.

The plaza level and surrounded area will be free of any office or storage trailers as all of this equipment will be found within the levels of underground parking. The building will no longer require the temporary power shed, as the permanent power from Dominion Virginia Electric will be supplied from the transform in an underground vault located at the corner of Yorktown Boulevard and 26th Street.

Please refer to Appendix B. for a site layout plan for the interior finishes phase.

3.0 Detailed Structural Systems Estimate

The entire superstructure, supporting foundation, and lateral system consists of steel reinforced, cast-in-place concrete. This system is the largest line item within the project budget and provides an area to investigate for potential cost savings. To begin this process, a detailed structural system estimate was performed based off of the buildings structural drawings.

The estimate includes foundations, slab on grade, elevated slabs, columns, and roof slabs. The cubic yardage of concrete, the tonnage of reinforcing steel, and the square feet of formwork were all estimated for each of these building components. The quantities for each of the individual components can be found within the tables of Appendix C.

It can be seen in Figure 3. below, that the structural slabs require the most material in each of the three categories; concrete, reinforcing bars, and formwork. That being said, an investigation into alternate types of floor systems could be investigated to provide potential cost savings to the project.

Concrete Totals	
Structural Component	**Total (CY)**
Square Foundations	412.61
Combined Foundations	324.19
Grade Beams	66.63
Mat Foundations	2409.18
Shear Walls	833.25
Residential Columns	300.90
Academic Columns	271.85
Residential Beams	50.36
Academic Beams	129.90
PT Transfer Beams	99.35
Foundation Walls	1362.26
Structural Slabs	7469.83
TOTAL	**13731**

Rebar Totals	
Structural Component	**Total (tons)**
Square Foundations	12.30
Combined Foundations	17.05
Grade Beams	3.45
Mat Foundations	155.83
Shear Walls	58.64
Residential Columns	32.58
Academic Columns	33.94
Residential Beams	7.77
Academic Beams	15.27
PT Transfer Beams	5.05
Foundation Walls	123.54
Structural Slabs	434.83
TOTAL	**901**

Formwork Totals	
Structural Component	**Area (sf)**
Square Foundations	-
Combined Foundations	-
Grade Beams	-
Mat Foundations	2943.54
Shear Walls	39434.64
Residential Columns	20595.24
Academic Columns	18481.50
Residential Beams	3589.49
Academic Beams	8221.61
PT Transfer Beams	2650.33
Foundation Walls	41709.00
Structural Slabs	265675.37
TOTAL	**403301**

Figure 3. Detailed Estimate Summary Tables

After all of the individual quantities were established from the structural drawings, RSMeans CostWorks software was utilized as the source of cost data for labor and materials. The data that was taken from RSMeans was adjusted for both location and time.

The estimated cost for the entire structural system is $8,059,795.31, which is roughly 19% of the overall project cost. This estimate seems extremely reasonable, as it is within 2% of the actual cost of the structural system. Also, the estimated value results in a building cost per square foot of $30.19, which is within $1.00 of the actual cost/square foot. A complete cost comparison can be seen in Figure5. Below.

Total Cost for the Structural System								
Description	Quantity	Unit	Bare Material	Bare Labor	Bare Equipment	Bare Total	Total O &P	Final O & P
REBAR								
Columns	67	Tons	$ 1,550.00	$ 950.00	$ -	$ 2,500.00	$3,250.00	$ 216,208.28
Beams/Girders	32	Tons	$ 1,550.00	$ 890.00	$ -	$ 2,440.00	$3,150.00	$ 99,369.13
Elevated Slabs	306	Tons	$ 1,650.00	$ 490.00	$ -	$ 2,140.00	$2,605.00	$ 797,130.00
Spread Footings	186	Tons	$ 1,400.00	$ 395.00	$ -	$ 1,795.00	$2,175.00	$ 404,550.00
Foundation/Shear Walls	183	Tons	$ 1,475.00	$ 1,340.00	$ -	$ 2,815.00	$3,265.00	$ 439,200.00
Expoxy Coated Rebar	129	Tons	$ 2,340.00	$475.00	$ -	$ 2,815.00	$3,265.00	$ 421,185.00
							REBAR TOTAL	**$ 2,377,642.41**
CONCRETE								
Beams/Girders (5000 psi)	347	CY	$ 110.00	$ 55.00	$ 26.50	$ 191.50	$ 249.00	$ 86,403.00
Columns (5000 psi)	573	CY	$ 110.00	$ 61.50	$ 30.00	$ 201.50	$ 262.00	$ 150,126.00
Elevated Slabs (4000 psi)	6695	CY	$ 106.00	$ 22.50	$ 10.90	$ 139.40	$ 182.00	$ 1,218,490.00
Spread Footings (5000 psi)	737	CY	$ 110.00	$ 55.00	$ 26.50	$ 191.50	$ 249.00	$ 183,513.00
Mat Foundations (5000 psi)	2410	CY	$ 110.00	$ 8.20	$ 3.99	$ 122.19	$ 159.00	$ 383,190.00
Foundation/Shear Walls (4000 psi)	2196	CY	$ 106.00	$ 27.50	$ 13.30	$ 146.80	$ 191.00	$ 419,436.00
Slab on Grade (4000 psi)	776	CY	$ 106.00	$ 55.00	$ 26.50	$ 187.50	$ 244.00	$ 189,344.00
							CONCRETE TOTAL	**$ 2,630,502.00**
FORMWORK								
Columns	39077	SFCA	$ 0.15	$ 0.79	$ 5.65	$ 6.44	$ 9.62	$ 375,918.24
Elevated Slabs	265675	SFCA	$ 0.09	$ 1.55	$ 3.43	$ 4.98	$ 7.01	$ 1,862,384.34
Foundation/Shear Walls	81144	SFCA	$ 0.12	$ 0.78	$ 4.73	$ 5.51	$ 8.21	$ 666,189.27
Beams/Girders	14461	SFCA	$ 0.12	$ 0.90	$ 4.73	$ 5.63	$ 8.34	$ 120,608.34
Mat Foundations	2944	SFCA	$ 0.14	$ 0.70	$ 5.35	$ 6.05	$ 9.02	$ 26,550.71
							FORMWORK TOTAL	**$ 3,051,650.90**
							GRAND TOTAL	**$ 8,059,795.31**

Figure 4. Estimate Cost of the Structural System

Estimated vs. Actual Project Costs			
Description	**Total Cost**	**Cost/SF**	**% of Project Cost**
Actual Structural System Cost	$ 7,926,500.00	$ 29.69	19%
RSMeans + Quantity Take-offs	$ 8,059,795.31	$ 30.19	19%

Figure 5. Actual vs. Estimated Costs

4.0 General Conditions Estimate

The general conditions estimate for the Marymount University 26th Street Project was generated with cost data from both RSMeans and industry standards provided by James G. Davis Construction. The general conditions are to be distributed though out the entire duration of the project and come to a grand total of $2,765,969.00. This results in a general conditions cost of $21,610.00/week and accounts for nearly 7% of the total construction volume. Additionally, 7% falls just below the industry average of 10%.

The three main categories that make up this estimate are costs associated with project personnel, job site operations, and safety, clean-up, and health. Of the three individual categories, the project personal generated the highest cost of $1,692,850.00. This cost includes the salaries for both the project management and site supervisions teams. As displayed in Figure 6. below, the cost associated with the project personnel accounts for approximately 61% of all general conditions costs.

Items included within the estimate can be found in Figure 7. below. Also, items of note that were not included in the estimate are the two tower cranes, quality control, and testing/inspection services. This is due to the fact that these costs are associated with the job and already included in the guaranteed maximum price.

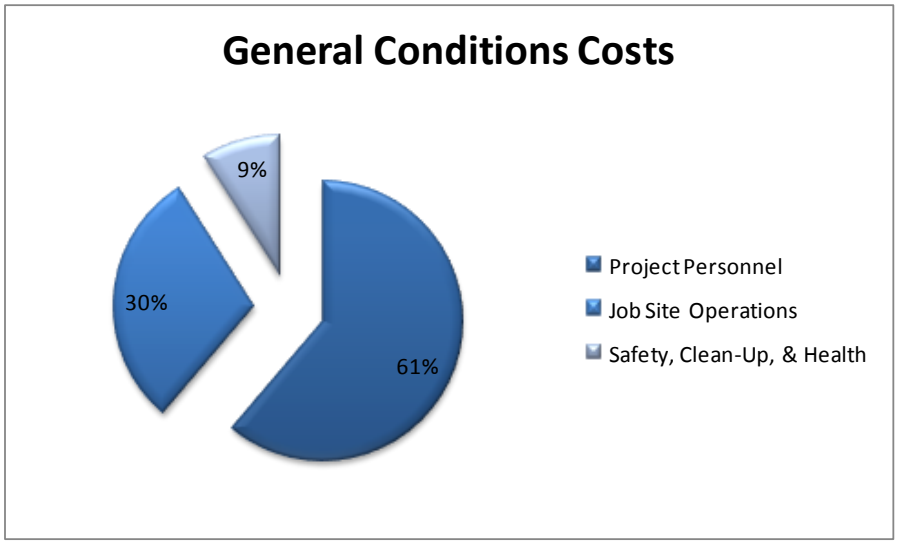


Figure 6. General Conditions Costs

General Conditions Estimate					
Description	**% on Job**	**Amount**	**Unit**	**Price/Unit**	**Total**
Project Personnel					
Project Executive	25%	128	Wks.	$ 500.78	$ 64,100.00
Senior Project Manager	100%	128	Wks.	$ 2,357.03	$ 301,700.00
Project Manager	100%	132	Wks.	$ 1,921.97	$ 253,700.00
Asst. Project Managers	100%	132	Wks.	$ 1,254.17	$ 165,550.00
Senior Superintendent	100%	90	Wks.	$ 3,648.89	$ 328,400.00
Superintendents - A	100%	86	Wks.	$ 1,537.21	$ 132,200.00
Superintendents - B	100%	86	Wks.	$ 1,726.74	$ 148,500.00
Safety Coordinator	10%	86	Wks.	$ 403.49	$ 34,700.00
Layout Engineer	50%	78	Wks.	$ 707.69	$ 55,200.00
Asst. Layout Engineer	50%	78	Wks.	$ 471.79	$ 36,800.00
LEED Coordinator	5%	86	Wks.	$ 341.86	$ 29,400.00
Project Scheduler	10%	86	Wks.	$ 497.67	$ 42,800.00
Courier Services	5%	86	Wks.	$ 341.86	$ 29,400.00
Project Administrator	20%	86	Wks.	$ 350.00	$ 44,800.00
Project Accounting	10%	86	Wks.	$ 200.00	$ 25,600.00
				SUB-TOTAL	**$ 1,692,850.00**
Job Site Operations					
Temporary Facilities					
Document Reproduction	-	1	LS	$ 7,875.00	$ 7,875.00
Progress Photographs	-	21	Mo.	$ 230.95	$ 4,850.00
Overnight & Hand Delivery	-	21	Mo.	$ 461.90	$ 9,700.00
Misc. Job Expenses	-	21	Mo.	$ 728.57	$ 15,300.00
Filed Office Set-Up	-	1	LS	$ 10,000.00	$ 10,000.00
Field Office Trailer Rental	-	11	Mo.	$ 927.27	$ 20,400.00
Copier/Fax/Printer	-	21	Mo.	$ 242.86	$ 5,100.00
IT/Network	-	21	Mo.	$ 2,632.10	$ 55,274.00
Field Telephone	-	21	Mo.	$ 485.24	$ 10,190.00
Construction Signage	-	1	LS	$ 2,800.00	$ 2,800.00
Construction Site Fence	-	1	LS	$ 5,250.00	$ 5,250.00
Material Hoist	-	12	Mo.	$ 8,775.00	$ 105,300.00
Storage Trailer	-	18	Mo.	$ 350.00	$ 6,300.00
Protection of Work in Place	-	21	Mo.	$ 5,729.05	$ 120,310.00
Surveying Equipment	-	78	Wks.	$ 120.00	$ 9,360.00
Temporary Utilities					
Temporary Power	-	13	Mo.	$ 16,961.54	$ 220,500.00
Temporary Water/Sanitary	-	21.5	Mo.	$ 488.37	$ 10,500.00
Rentals					
Vehicles	-	29.5	Mo.	$ 4,894.92	$ 144,400.00
Cell Phones	-	21	Mo.	$ 704.76	$ 14,800.00
Two-Way Radios	-	21	Mo.	$ 142.86	$ 3,000.00
Dump Truck	-	21	Mo.	$ 29,380.00	$ 29,380.00
Tools & Equipment	-	21	Mo.	$ 704.76	$ 14,800.00
				SUB-TOTAL	**$ 825,389.00**

Safety, Clean-up, Health					
Trash Carts	-	21	Mo.	$ 242.62	$ 5,095.00
Misc. Clean-Up	-	21	Mo.	$ 4,173.81	$ 87,650.00
Dumpsters	-	86	Wks.	$ 450.00	$ 57,600.00
Trash Chute	-	1	LS	$ 12,300.00	$ 12,300.00
General Health & Safety	-	21	Mo.	$ 97.14	$ 2,040.00
First Aid-Kit & Supplies	-	21	Mo.	$ 192.38	$ 4,040.00
Fire Extinguishers/Protection	-	1	LS	$ 7,000.00	$ 7,000.00
Temporary Toilets	-	21	Mo.	$ 727.62	$ 15,280.00
Personal Protective Equipment	-	21	Mo.	$ 485.24	$ 10,190.00
Fall Protection	-	21	Mo.	$ 732.14	$ 15,375.00
Potable Water	-	21	Mo.	$ 175.00	$ 5,160.00
Protection	-	21	Mo.	$ 1,238.10	$ 26,000.00
				SUB-TOTAL	$ 247,730.00
				GRAND TOTAL	**$ 2,765,969.00**

Figure 7. General Conditions Estimate

5.0 Critical Industry Issues

On October 15, 2009, the 18th annual PACE (Partnership for Achieving Construction Excellence) Roundtable Meeting was held at the Penn Stater Conference Center Hotel. Those in attendance included Senior/Graduate Architectural Engineering students, Architectural Engineering faculty members, and numerous industry members. Those present were presented with a variety of critical industry issues all related to a common theme. The theme of this year's discussion was "Creating Opportunities" and was chosen due the current state of the economy and the ever changing landscape of the construction industry. The topics discussed were "Energy and the Building Industry," "BIM Execution Planning," and Business Networking: Expanding Circles and Creating Opportunities."

The Roundtable meeting began with an industry panel discussion on the "State of the Construction Industry." Members of the panel addressed the economic down turn and the impacts on the industry. Each panel member was given the opportunity to share company specific strategies that their firm has been utilizing to move forward through these rough economic times. It was noticed that some reoccurring themes and ideas existed between multiple of the industry members. Diversity is an example of one of these common themes. It was stated multiple times that in order for a company to be successful in these rough economic times, there needs to be diversity in both project size and project market. This may involve seeking work on a project that is smaller than normal or entering a market that a company may have no previous experience. However, this strategy is required in order to survive.

The next segment of the meeting involved attending a Break-Out Session, of which one of the three topics listed above was discussed. It was determined that attending the "Energy and the Building Industry" session was most appropriate, as the Marymount University 26th Street Project is attempting to achieve a LEED Certified Level. The facilitator for this session was Dr. David Riley and the agenda involved discussing how new standards for energy performance and energy usage are emerging as priorities of clients. The Break-out Session was separated into two sessions. The first session was held to determine the definition of the problem, while the second session was to develop a solution to the problem that was defined in the previous session.

In the first session, everyone in attendance was required to state their name and their reason for participating in this particular break-out session. The Architectural Engineering students slightly outnumber the industry professionals, but each person in the room was able to provide individual input on the topic of "Energy and the Building Industry."

To begin the session, the members of the discussion were tasked with listed specific concerns regarding energy. Some of the major energy concerns that were generated in this discussion include negative impacts on the environment, business/marketing strategies, and materials/systems. All of these

concerns apply to the Marymount University 26th Street Project as the university has incorporated sustainable design into the project. The university is highly committed to the idea of sustainability and is proudly announcing the addition of a "green" building to their campus.

The second session was structured in such a way that the Architectural Engineering students could present concerns specific to their individual thesis project. For the Marymount University 26th Street Project, some specific concerns include incorporating both enhanced commissioning and an energy education plan for both the student residents, as well as the building engineers. With the addition of these two strategies, the university can maintain their LEED status and the educated occupants can help to meet, and hopefully decrease the building's energy demands.

In conclusion, it is felt that attending the 18th annual PACE Roundtable Meeting was an extremely invaluable opportunity. The students present were provided with a variety of opinions from a both design professionals and construction industry professional s. It was amazing to see that all of the members of these firms, some even competitors, take the time out of their busy schedules to share their knowledge and experience with students. The contacts found in Figure 8. below, represent all of the individuals that were met at the 2009 PACE Roundtable Meeting and whom were more than willing to share their knowledge and experience.

PACE Industry Participants		
Name	**Company**	**Email**
Michael Pittsman	James G. Davis Construction Corporation	mpittsman@davisconstruction.com
Jeremy Sibert	Hensel Phelps	jsiber@henselphelps.com
Daniel Kerr	McClure Company	dankerr@mcclureco.com
James Salvino	Clark Construction Group	james.salvino@clarkconstruction.com
Chuck Tomasco	Truland Systems Corporation	ctomasco@truland.com

Figure 8. PACE Industry Participants

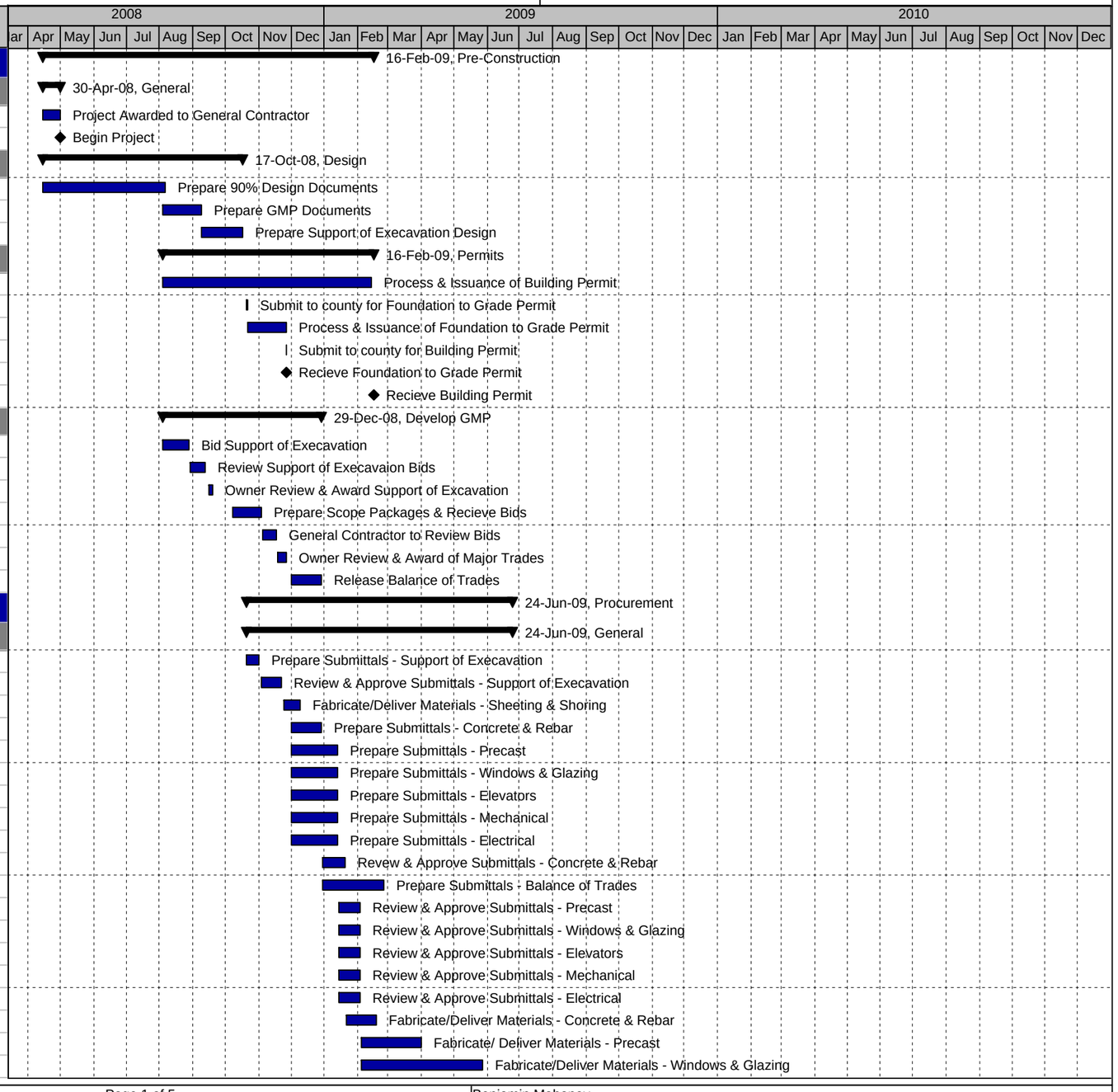
Appendix A: Detailed Project Schedule

10-28-2009

Marymount University

Detailed Project Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
Pre-Construction		213	14-Apr-08	16-Feb-09
General		13	14-Apr-08	30-Apr-08
A1020	Project Awarded to General Contractor	13	14-Apr-08	30-Apr-08
A1010	Begin Project	0	30-Apr-08*	
Design		132	14-Apr-08	17-Oct-08
A1030	Prepare 90% Design Documents	80	14-Apr-08	05-Aug-08
A1040	Prepare GMP Documents	25	04-Aug-08*	08-Sep-08
A1050	Prepare Support of Execavation Design	30	08-Sep-08*	17-Oct-08
Permits		135	04-Aug-08	16-Feb-09
A1070	Process & Issuance of Building Permit	135	04-Aug-08*	13-Feb-09
A1080	Submit to county for Foundation to Grade Permit	2	20-Oct-08*	21-Oct-08
A1090	Process & Issuance of Foundation to Grade Permit	26	22-Oct-08*	26-Nov-08
A1060	Submit to county for Building Permit	1	26-Nov-08*	26-Nov-08
A1100	Recieve Foundation to Grade Permit	0	26-Nov-08*	
A1110	Recieve Building Permit	0	16-Feb-09*	
Develop GMP		102	04-Aug-08	29-Dec-08
A1120	Bid Support of Execavation	19	04-Aug-08*	28-Aug-08
A1130	Review Support of Execavaion Bids	10	29-Aug-08*	12-Sep-08
A1140	Owner Review & Award Support of Excavation	5	15-Sep-08*	19-Sep-08
A1150	Prepare Scope Packages & Recieve Bids	19	08-Oct-08*	03-Nov-08
A1160	General Contractor to Review Bids	10	04-Nov-08*	17-Nov-08
A1170	Owner Review & Award of Major Trades	7	18-Nov-08*	26-Nov-08
A1180	Release Balance of Trades	20	01-Dec-08*	29-Dec-08
Procurement		173	20-Oct-08	24-Jun-09
General		173	20-Oct-08	24-Jun-09
A1190	Prepare Submittals - Support of Execavation	10	20-Oct-08*	31-Oct-08
A1200	Review & Approve Submittals - Support of Execavation	15	03-Nov-08*	21-Nov-08
A1210	Fabricate/Deliver Materials - Sheeting & Shoring	10	24-Nov-08*	09-Dec-08
A1220	Prepare Submittals - Concrete & Rebar	20	01-Dec-08*	29-Dec-08
A1230	Prepare Submittals - Precast	30	01-Dec-08*	13-Jan-09
A1240	Prepare Submittals - Windows & Glazing	30	01-Dec-08*	13-Jan-09
A1250	Prepare Submittals - Elevators	30	01-Dec-08*	13-Jan-09
A1260	Prepare Submittals - Mechanical	30	01-Dec-08*	13-Jan-09
A1270	Prepare Submittals - Electrical	30	01-Dec-08*	13-Jan-09
A1280	Revew & Approve Submittals - Concrete & Rebar	15	30-Dec-08*	20-Jan-09
A1290	Prepare Submittals - Balance of Trades	40	30-Dec-08*	24-Feb-09
A1300	Review & Approve Submittals - Precast	15	14-Jan-09*	03-Feb-09
A1310	Review & Approve Submittals - Windows & Glazing	15	14-Jan-09*	03-Feb-09
A1320	Review & Approve Submittals - Elevators	15	14-Jan-09*	03-Feb-09
A1330	Review & Approve Submittals - Mechanical	15	14-Jan-09*	03-Feb-09
A1340	Review & Approve Submittals - Electrical	15	14-Jan-09*	03-Feb-09
A1350	Fabricate/Deliver Materials - Concrete & Rebar	20	21-Jan-09*	17-Feb-09
A1360	Fabricate/ Deliver Materials - Precast	40	04-Feb-09*	31-Mar-09
A1370	Fabricate/Deliver Materials - Windows & Glazing	80	04-Feb-09*	27-May-09



Actual Work · Remaining Work · Critical Remaining Work · Milestone · Summary

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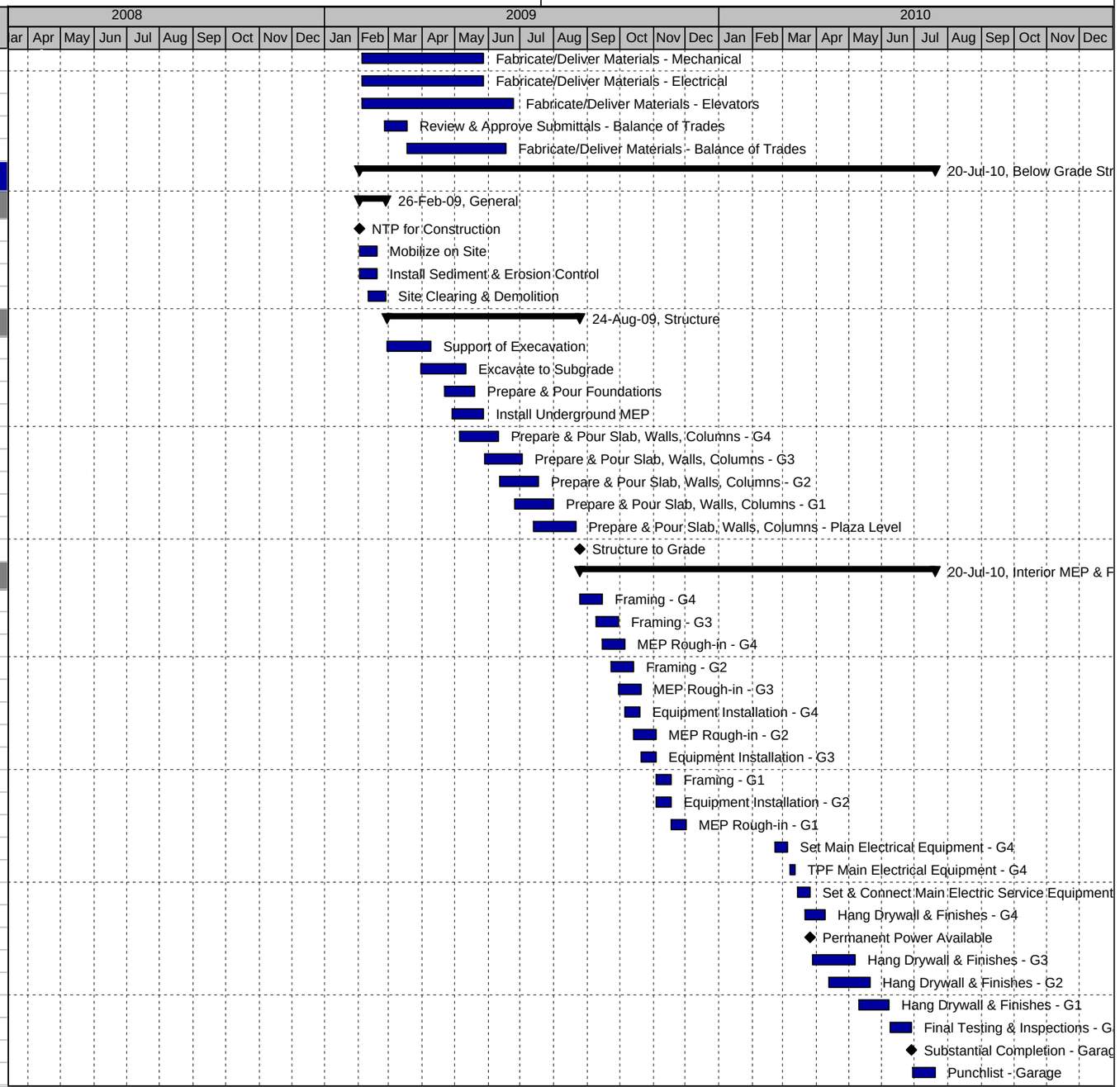
Marymount University

Detailed Project Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
A1380	Fabricate/Deliver Materials - Mechanical	80	04-Feb-09*	27-May-09
A1390	Fabricate/Deliver Materials - Electrical	80	04-Feb-09*	27-May-09
A1400	Fabricate/Deliver Materials - Elevators	100	04-Feb-09*	24-Jun-09
A1410	Review & Approve Submittals - Balance of Trades	15	25-Feb-09*	17-Mar-09
A1420	Fabricate/Deliver Materials - Balance of Trades	65	18-Mar-09*	17-Jun-09
Below Grade Structure		373	02-Feb-09	20-Jul-10
General		19	02-Feb-09	26-Feb-09
A1430	NTP for Construction	0	02-Feb-09*	
A1440	Mobilize on Site	12	02-Feb-09*	17-Feb-09
A1450	Install Sediment & Erosion Control	12	02-Feb-09*	17-Feb-09
A1460	Site Clearing & Demolition	13	10-Feb-09*	26-Feb-09
Structure		125	27-Feb-09	24-Aug-09
A1470	Support of Execavation	30	27-Feb-09*	09-Apr-09
A1480	Excavate to Subgrade	30	31-Mar-09*	11-May-09
A1490	Prepare & Pour Foundations	20	22-Apr-09*	19-May-09
A1500	Install Underground MEP	20	29-Apr-09*	27-May-09
A1510	Prepare & Pour Slab, Walls, Columns - G4	25	06-May-09*	10-Jun-09
A1520	Prepare & Pour Slab, Walls, Columns - G3	25	29-May-09*	02-Jul-09
A1530	Prepare & Pour Slab, Walls, Columns - G2	25	12-Jun-09*	17-Jul-09
A1540	Prepare & Pour Slab, Walls, Columns - G1	25	26-Jun-09*	31-Jul-09
A1550	Prepare & Pour Slab, Walls, Columns - Plaza Level	30	13-Jul-09*	21-Aug-09
A1560	Structure to Grade	0		24-Aug-09
Interior MEP & Finishes		229	25-Aug-09	20-Jul-10
A1570	Framing - G4	15	25-Aug-09*	14-Sep-09
A1580	Framing - G3	15	09-Sep-09*	29-Sep-09
A1575	MEP Rough-in - G4	15	15-Sep-09*	05-Oct-09
A1590	Framing - G2	15	23-Sep-09*	13-Oct-09
A1585	MEP Rough-in - G3	15	30-Sep-09*	20-Oct-09
A1576	Equipment Installation - G4	10	06-Oct-09*	19-Oct-09
A1595	MEP Rough-in - G2	15	14-Oct-09*	03-Nov-09
A1589	Equipment Installation - G3	10	21-Oct-09*	03-Nov-09
A1600	Framing - G1	10	04-Nov-09*	17-Nov-09
A1599	Equipment Installation - G2	10	04-Nov-09*	17-Nov-09
A1605	MEP Rough-in - G1	10	18-Nov-09*	01-Dec-09
A1610	Set Main Electrical Equipment - G4	10	22-Feb-10*	05-Mar-10
A1620	TPF Main Electrical Equipment - G4	5	08-Mar-10*	12-Mar-10
A1630	Set & Connect Main Electric Service Equipment - G4	10	15-Mar-10*	26-Mar-10
A1650	Hang Drywall & Finishes - G4	15	22-Mar-10*	09-Apr-10
A1640	Permanent Power Available	0		26-Mar-10
A1660	Hang Drywall & Finishes - G3	30	29-Mar-10*	07-May-10
A1670	Hang Drywall & Finishes - G2	30	12-Apr-10*	21-May-10
A1680	Hang Drywall & Finishes - G1	20	10-May-10*	07-Jun-10
A1690	Final Testing & Inspections - Garage	15	08-Jun-10*	28-Jun-10
A1700	Substantial Completion - Garage	0		28-Jun-10
A1710	Punchlist - Garage	15	29-Jun-10*	20-Jul-10



Actual Work | Critical Remaining Work | Summary

Remaining Work | Milestone

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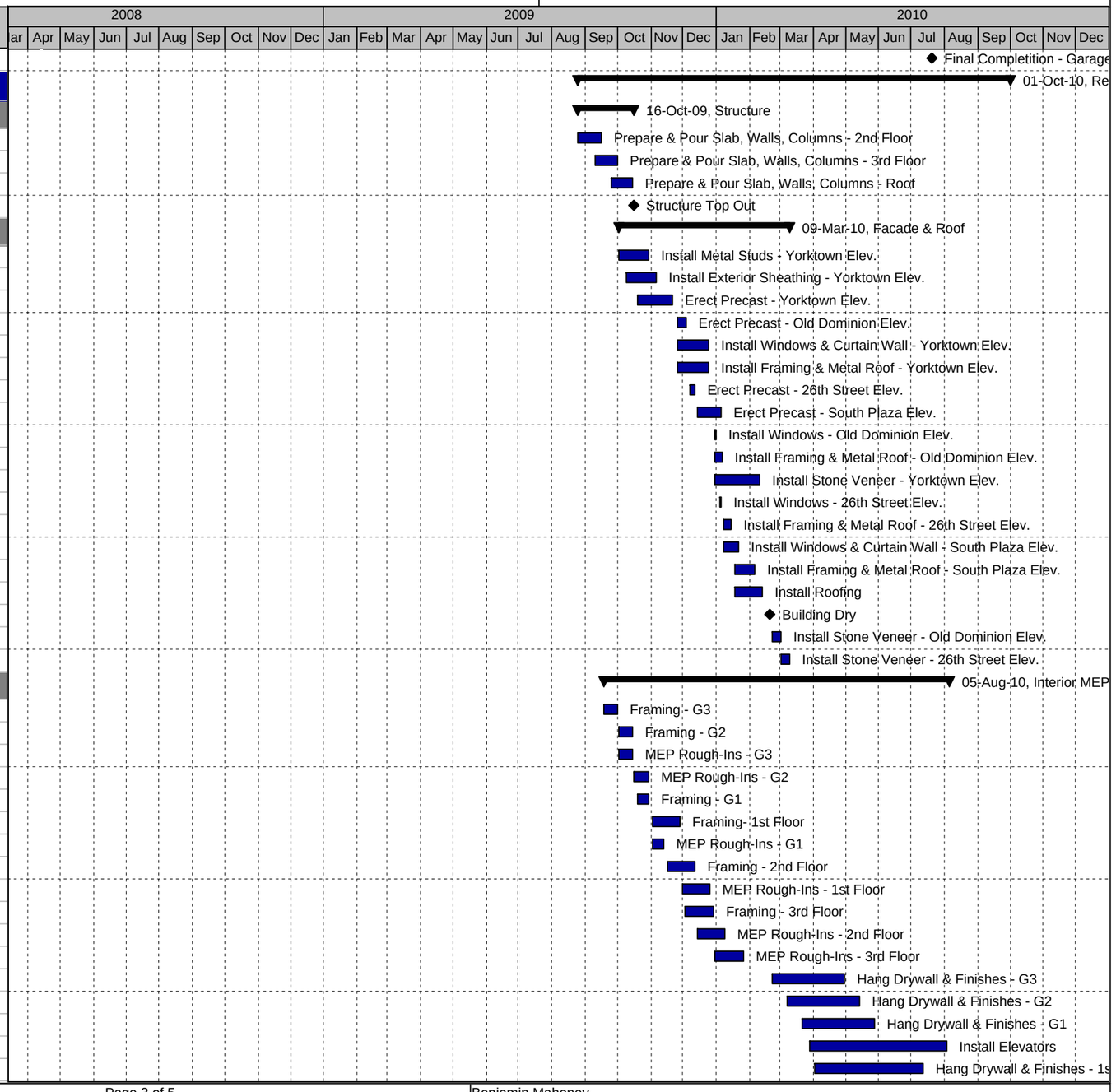
Marymount University

Detailed Project Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
A1720	Final Completition - Garage	0		20-Jul-10
Residence Hall		281	25-Aug-09	01-Oct-10
Structure		38	25-Aug-09	16-Oct-09
A1730	Prepare & Pour Slab, Walls, Columns - 2nd Floor	15	25-Aug-09*	15-Sep-09
A1740	Prepare & Pour Slab, Walls, Columns - 3rd Floor	15	10-Sep-09*	30-Sep-09
A1750	Prepare & Pour Slab, Walls, Columns - Roof	15	25-Sep-09*	15-Oct-09
A1760	Structure Top Out	0		16-Oct-09
Facade & Roof		109	02-Oct-09	09-Mar-10
A1770	Install Metal Studs - Yorktown Elev.	20	02-Oct-09*	29-Oct-09
A1780	Install Exterior Sheathing - Yorktown Elev.	20	09-Oct-09*	05-Nov-09
A1790	Erect Precast - Yorktown Elev.	25	19-Oct-09*	20-Nov-09
A1800	Erect Precast - Old Dominion Elev.	5	25-Nov-09*	03-Dec-09
A1810	Install Windows & Curtain Wall - Yorktown Elev.	20	25-Nov-09*	24-Dec-09
A1820	Install Framing & Metal Roof - Yorktown Elev.	20	25-Nov-09*	24-Dec-09
A1830	Erect Precast - 26th Street Elev.	5	07-Dec-09*	11-Dec-09
A1840	Erect Precast - South Plaza Elev.	15	14-Dec-09*	05-Jan-10
A1850	Install Windows - Old Dominion Elev.	2	30-Dec-09*	31-Dec-09
A1860	Install Framing & Metal Roof - Old Dominion Elev.	5	30-Dec-09*	06-Jan-10
A1870	Install Stone Veneer - Yorktown Elev.	30	30-Dec-09*	10-Feb-10
A1880	Install Windows - 26th Street Elev.	2	04-Jan-10*	05-Jan-10
A1890	Install Framing & Metal Roof - 26th Street Elev.	5	08-Jan-10*	14-Jan-10
A1900	Install Windows & Curtain Wall - South Plaza Elev.	10	08-Jan-10*	21-Jan-10
A1910	Install Framing & Metal Roof - South Plaza Elev.	15	18-Jan-10*	05-Feb-10
A1920	Install Roofing	20	18-Jan-10*	12-Feb-10
A1930	Building Dry	0		19-Feb-10
A1940	Install Stone Veneer - Old Dominion Elev.	6	22-Feb-10*	01-Mar-10
A1950	Install Stone Veneer - 26th Street Elev.	6	02-Mar-10*	09-Mar-10
Interior MEP & Finishes		224	18-Sep-09	05-Aug-10
A1960	Framing - G3	10	18-Sep-09*	01-Oct-09
A1970	Framing - G2	10	02-Oct-09*	15-Oct-09
A1965	MEP Rough-Ins - G3	10	02-Oct-09*	15-Oct-09
A1975	MEP Rough-Ins - G2	10	16-Oct-09*	29-Oct-09
A1980	Framing - G1	10	19-Oct-09*	30-Oct-09
A1990	Framing- 1st Floor	20	02-Nov-09*	27-Nov-09
A1985	MEP Rough-Ins - G1	10	02-Nov-09*	13-Nov-09
A2000	Framing - 2nd Floor	20	16-Nov-09*	11-Dec-09
A1995	MEP Rough-Ins - 1st Floor	20	30-Nov-09*	25-Dec-09
A2010	Framing - 3rd Floor	20	02-Dec-09*	29-Dec-09
A2005	MEP Rough-Ins - 2nd Floor	20	14-Dec-09*	08-Jan-10
A2015	MEP Rough-Ins - 3rd Floor	20	30-Dec-09*	26-Jan-10
A2020	Hang Drywall & Finishes - G3	50	22-Feb-10*	30-Apr-10
A2030	Hang Drywall & Finishes - G2	50	08-Mar-10*	14-May-10
A2040	Hang Drywall & Finishes - G1	50	22-Mar-10*	28-May-10
A2050	Install Elevators	90	29-Mar-10*	03-Aug-10
A2060	Hang Drywall & Finishes - 1st Floor	70	02-Apr-10*	12-Jul-10



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

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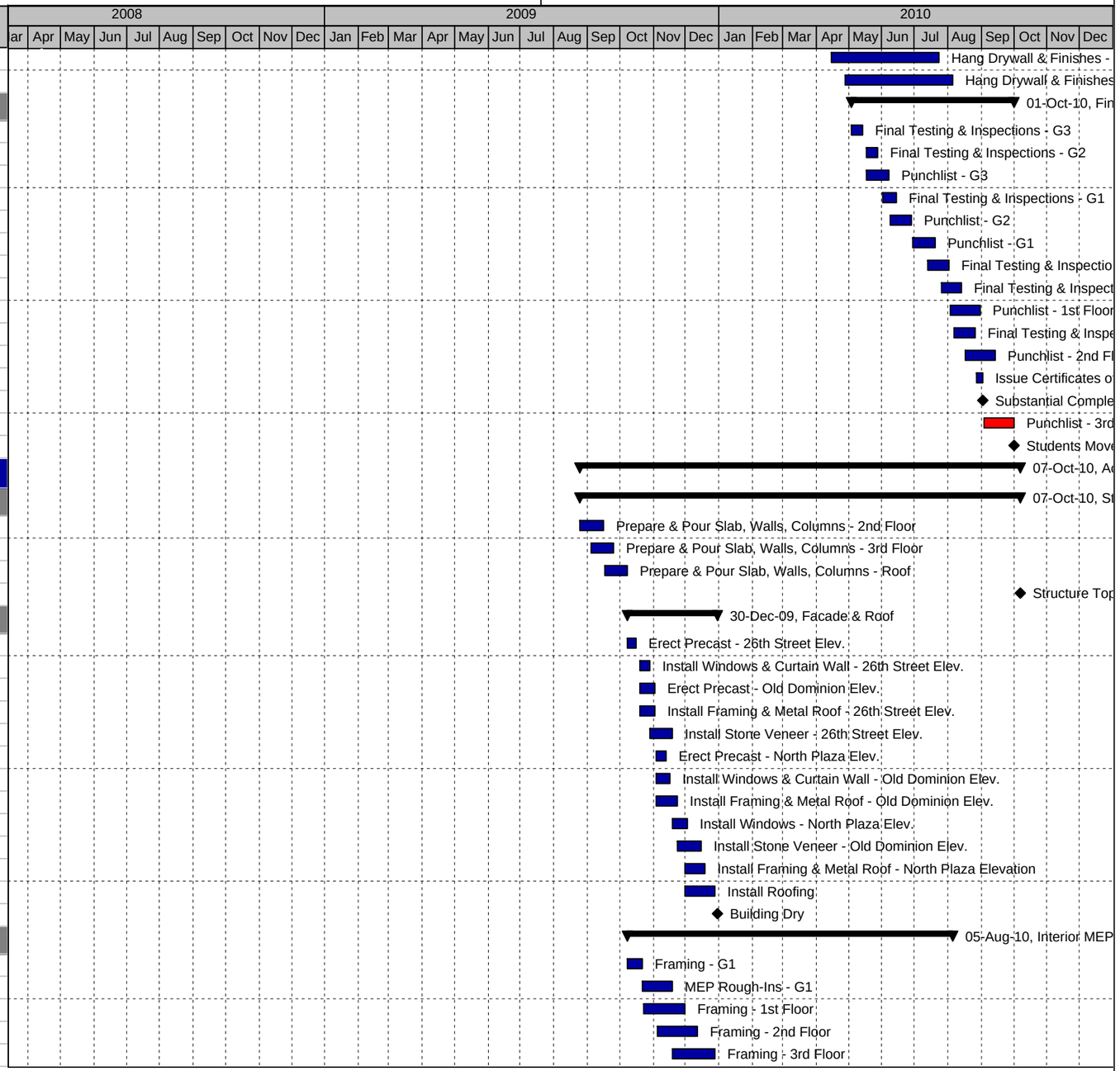
Marymount University

Detailed Project Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
A2070	Hang Drywall & Finishes - 2nd Floor	70	15-Apr-10*	23-Jul-10
A2080	Hang Drywall & Finishes - 3rd Floor	70	28-Apr-10*	05-Aug-10
Final Inspections & Punchlist		107	03-May-10	01-Oct-10
A2090	Final Testing & Inspections - G3	10	03-May-10*	14-May-10
A2100	Final Testing & Inspections - G2	10	17-May-10*	28-May-10
A2110	Punchlist - G3	15	17-May-10*	07-Jun-10
A2120	Final Testing & Inspections - G1	10	01-Jun-10*	14-Jun-10
A2130	Punchlist - G2	15	08-Jun-10*	28-Jun-10
A2140	Punchlist - G1	15	29-Jun-10*	20-Jul-10
A2150	Final Testing & Inspections - 1st Floor	15	13-Jul-10*	02-Aug-10
A2160	Final Testing & Inspections - 2nd Floor	15	26-Jul-10*	13-Aug-10
A2170	Punchlist - 1st Floor	20	03-Aug-10*	30-Aug-10
A2180	Final Testing & Inspections - 3rd Floor	15	06-Aug-10*	26-Aug-10
A2190	Punchlist - 2nd Floor	20	17-Aug-10*	14-Sep-10
A2200	Issue Certificates of Occupancy - Residence Hall	5	27-Aug-10*	02-Sep-10
A2210	Substantial Completion - Resdience Hall	0		02-Sep-10
A2220	Punchlist - 3rd Floor	20	03-Sep-10*	01-Oct-10
A2230	Students Move In - Residence Hall	0		01-Oct-10
Academic Facility		285	25-Aug-09	07-Oct-10
Structure		285	25-Aug-09	07-Oct-10
A2240	Prepare & Pour Slab, Walls, Columns - 2nd Floor	15	25-Aug-09*	15-Sep-09
A2250	Prepare & Pour Slab, Walls, Columns - 3rd Floor	15	04-Sep-09*	25-Sep-09
A2260	Prepare & Pour Slab, Walls, Columns - Roof	15	17-Sep-09*	07-Oct-09
A2270	Structure Top Out	0		07-Oct-10
Facade & Roof		57	08-Oct-09	30-Dec-09
A2280	Erect Precast - 26th Street Elev.	7	08-Oct-09*	16-Oct-09
A2290	Install Windows & Curtain Wall - 26th Street Elev.	7	20-Oct-09*	28-Oct-09
A2300	Erect Precast - Old Dominion Elev.	10	20-Oct-09*	02-Nov-09
A2310	Install Framing & Metal Roof - 26th Street Elev.	10	20-Oct-09*	02-Nov-09
A2320	Install Stone Veneer - 26th Street Elev.	15	29-Oct-09*	18-Nov-09
A2330	Erect Precast - North Plaza Elev.	8	03-Nov-09*	12-Nov-09
A2340	Install Windows & Curtain Wall - Old Dominion Elev.	10	03-Nov-09*	16-Nov-09
A2350	Install Framing & Metal Roof - Old Dominion Elev.	15	03-Nov-09*	23-Nov-09
A2360	Install Windows - North Plaza Elev.	8	19-Nov-09*	02-Dec-09
A2370	Install Stone Veneer - Old Dominion Elev.	15	23-Nov-09*	15-Dec-09
A2380	Install Framing & Metal Roof - North Plaza Elevation	15	30-Nov-09*	18-Dec-09
A2390	Install Roofing	20	30-Nov-09*	28-Dec-09
A2400	Building Dry	0		30-Dec-09
Interior MEP & Finishes		210	08-Oct-09	05-Aug-10
A2410	Framing - G1	10	08-Oct-09*	21-Oct-09
A2415	MEP Rough-Ins - G1	20	22-Oct-09*	18-Nov-09
A2420	Framing - 1st Floor	25	23-Oct-09*	30-Nov-09
A2430	Framing - 2nd Floor	25	05-Nov-09*	11-Dec-09
A2440	Framing - 3rd Floor	25	19-Nov-09*	28-Dec-09



Actual Work | Critical Remaining Work | Summary
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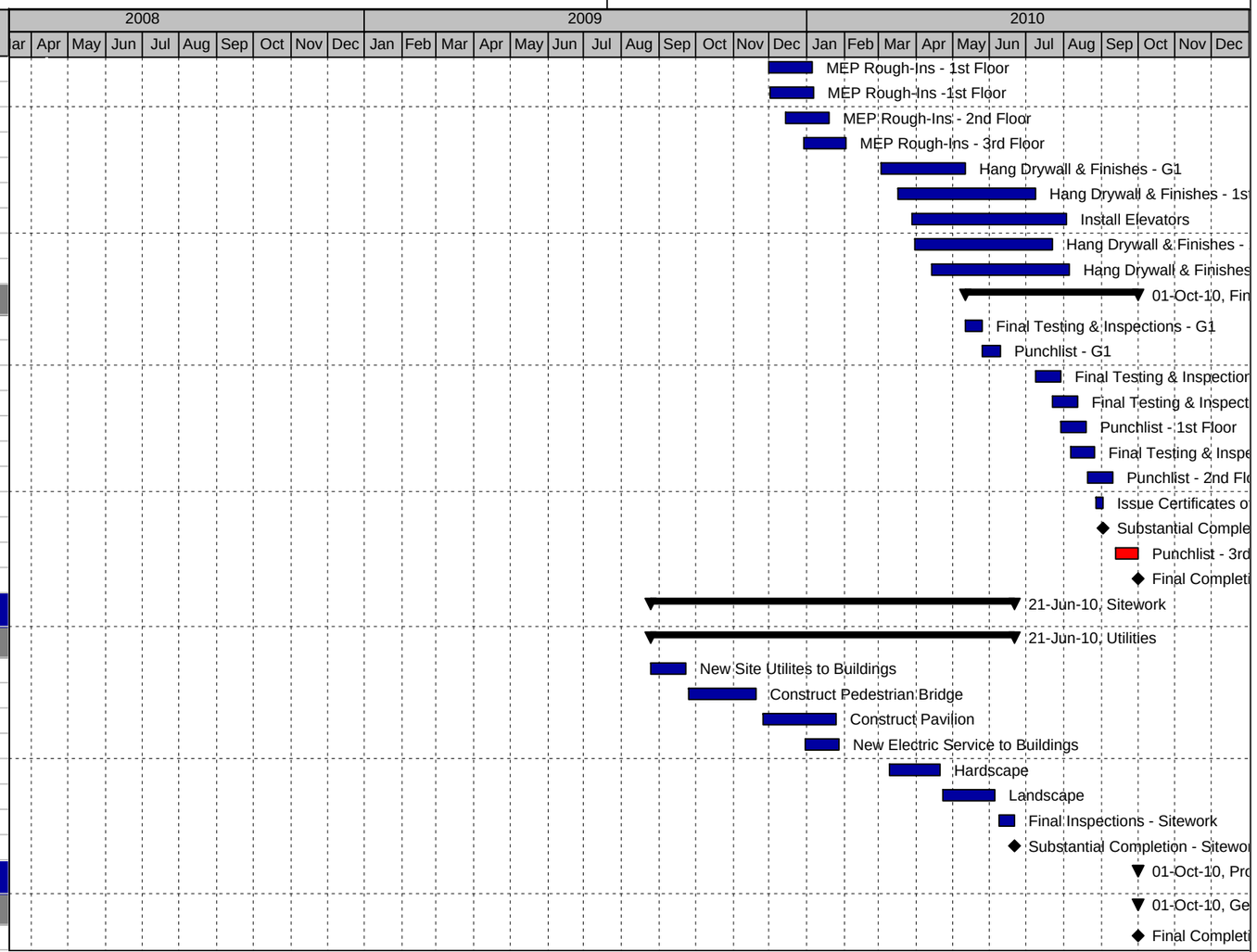
Marymount University

Detailed Project Schedule

Activity ID	Activity Name	Original Duration	Start	Finish
A2425	MEP Rough-Ins - 1st Floor	25	30-Nov-09*	05-Jan-10
A2700	MEP Rough-Ins -1st Floor	25	01-Dec-09*	06-Jan-10
A2435	MEP Rough-Ins - 2nd Floor	25	14-Dec-09*	19-Jan-10
A2445	MEP Rough-Ins - 3rd Floor	25	29-Dec-09*	02-Feb-10
A2450	Hang Drywall & Finishes - G1	50	03-Mar-10*	11-May-10
A2460	Hang Drywall & Finishes - 1st Floor	80	17-Mar-10*	08-Jul-10
A2470	Install Elevators	90	29-Mar-10*	03-Aug-10
A2480	Hang Drywall & Finishes - 2nd Floor	80	31-Mar-10*	22-Jul-10
A2490	Hang Drywall & Finishes - 3rd Floor	80	14-Apr-10*	05-Aug-10
Final Inspections & Punchlist		100	12-May-10	01-Oct-10
A2500	Final Testing & Inspections - G1	10	12-May-10*	25-May-10
A2510	Punchlist - G1	10	26-May-10*	09-Jun-10
A2520	Final Testing & Inspections - 1st Floor	15	09-Jul-10*	29-Jul-10
A2530	Final Testing & Inspections - 2nd Floor	15	23-Jul-10*	12-Aug-10
A2540	Punchlist - 1st Floor	15	30-Jul-10*	19-Aug-10
A2550	Final Testing & Inspections - 3rd Floor	15	06-Aug-10*	26-Aug-10
A2560	Punchlist - 2nd Floor	15	20-Aug-10*	10-Sep-10
A2570	Issue Certificates of Occupancy - Academic Facility	5	27-Aug-10*	02-Sep-10
A2580	Substantial Completion - Academic Facility	0		02-Sep-10
A2590	Punchlist - 3rd Floor	15	13-Sep-10*	01-Oct-10
A2600	Final Completion - Academic Facility	0		01-Oct-10
Sitework		209	25-Aug-09	21-Jun-10
Utilities		209	25-Aug-09	21-Jun-10
A2610	New Site Utilites to Buildings	20	25-Aug-09*	22-Sep-09
A2620	Construct Pedestrian Bridge	40	25-Sep-09*	19-Nov-09
A2630	Construct Pavilion	40	25-Nov-09*	25-Jan-10
A2640	New Electric Service to Buildings	20	30-Dec-09*	27-Jan-10
A2650	Hardscape	30	10-Mar-10*	20-Apr-10
A2660	Landscape	30	23-Apr-10*	04-Jun-10
A2670	Final Inspections - Sitework	10	08-Jun-10*	21-Jun-10
A2680	Substantial Completion - Sitework	0		21-Jun-10
Project Completion		0	01-Oct-10	01-Oct-10
General		0	01-Oct-10	01-Oct-10
A2690	Final Completion	0		01-Oct-10



Actual Work
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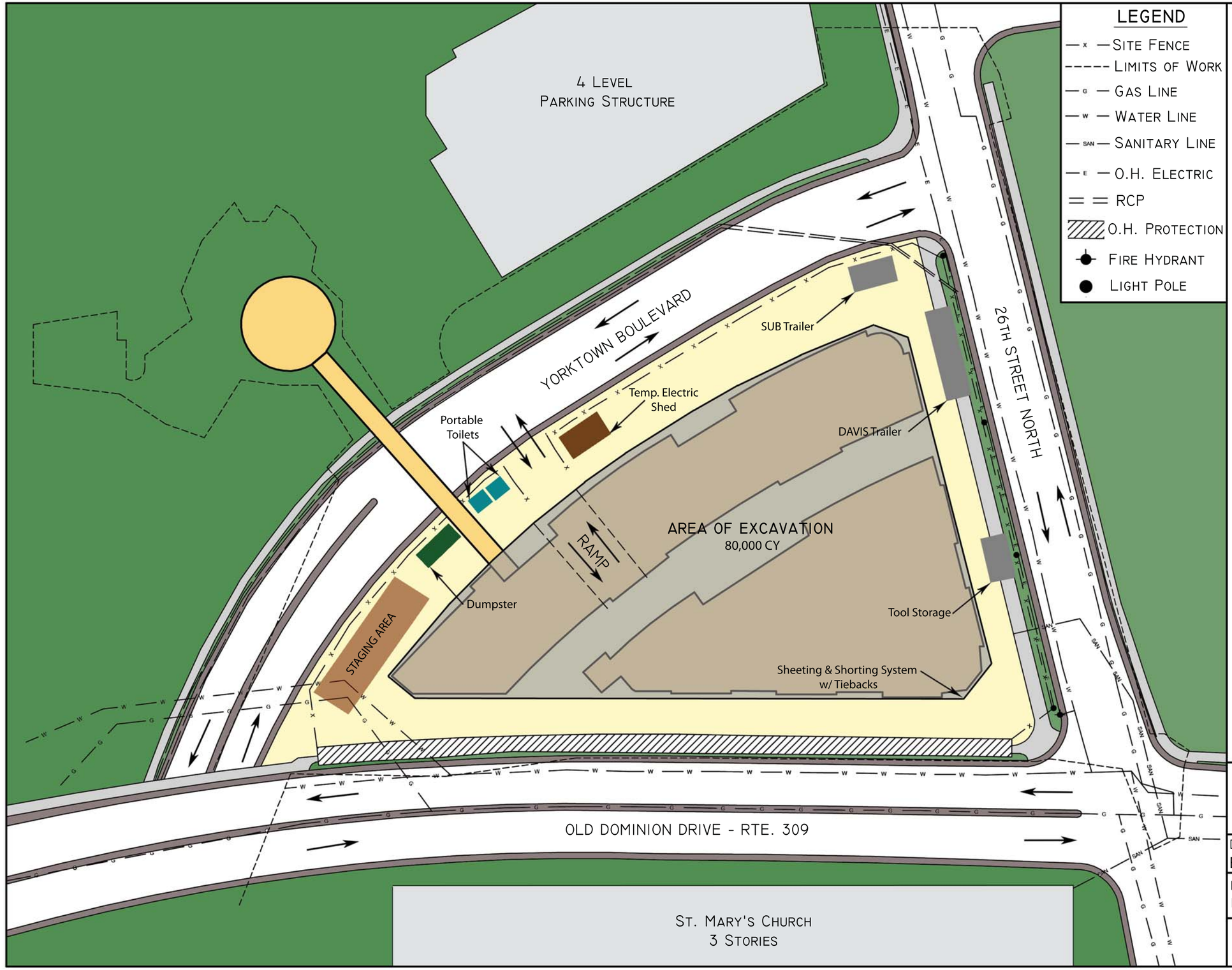
Appendix B: Site Layout Plans



Marymount University 26th Street Project

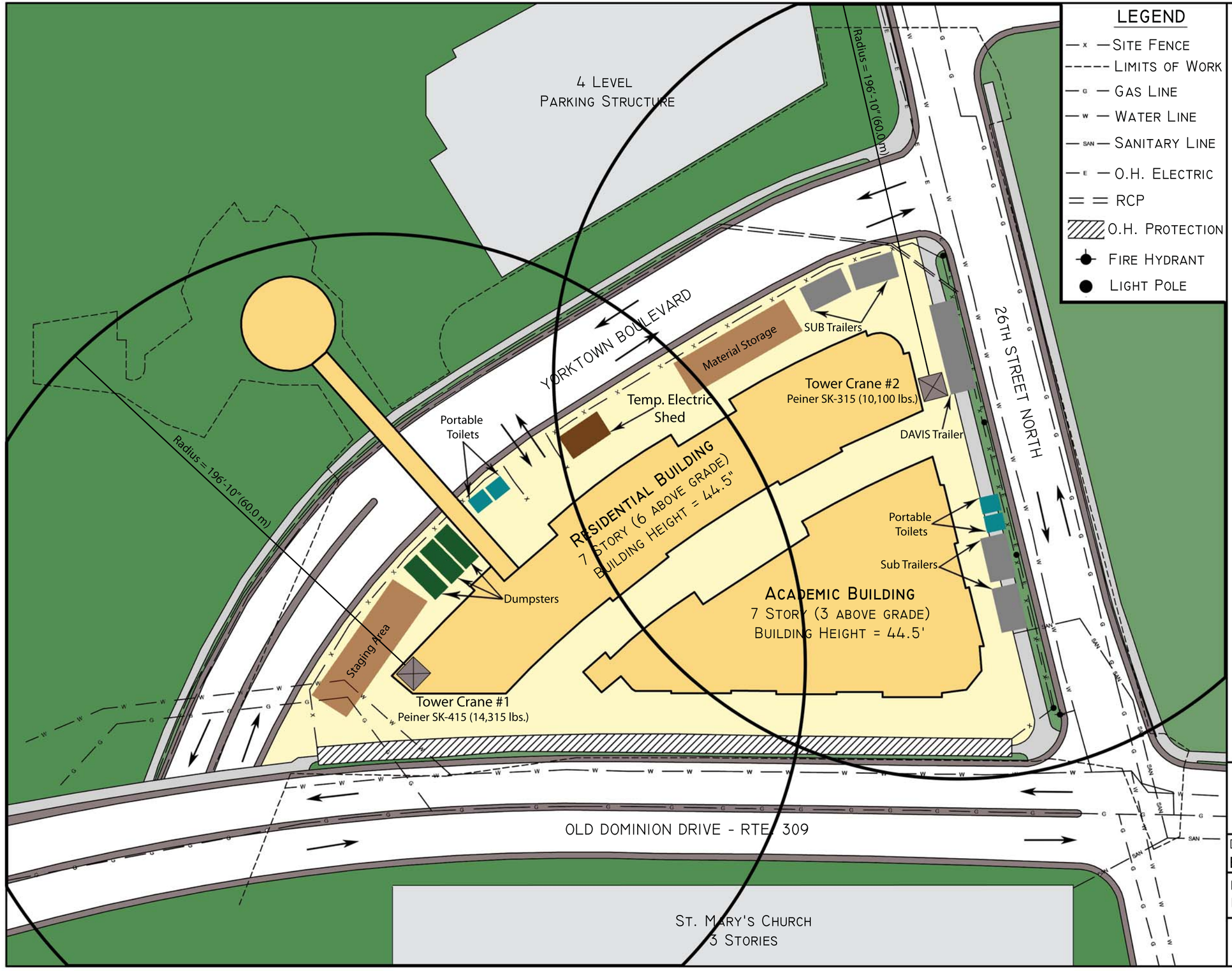
Arlington, Virginia

Site Utilization Plan - Excavation

Drawn By:
Ben Mahoney

Date:
10/28/2009

C-001



Marymount University 26th Street Project

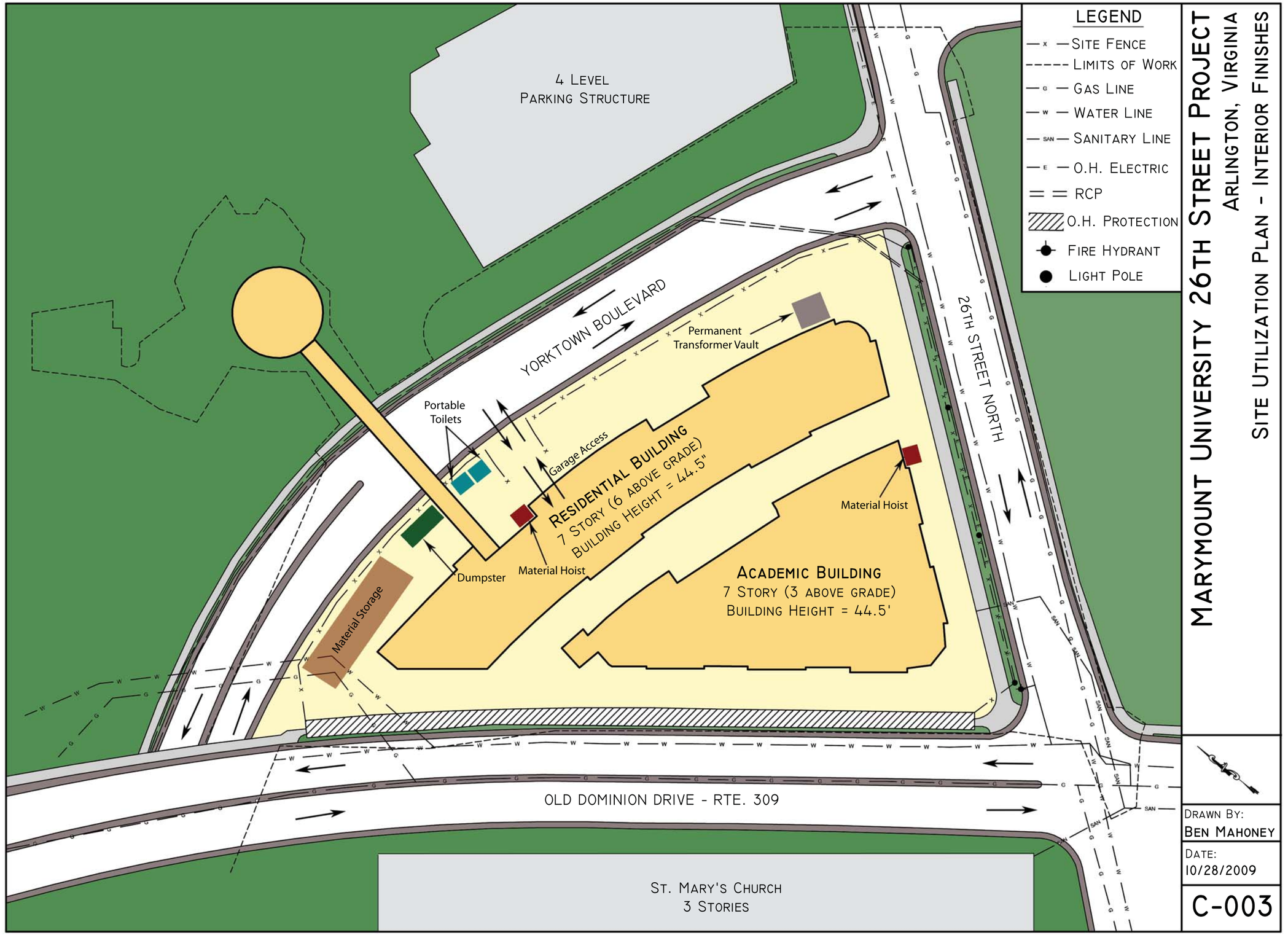
Arlington, Virginia

Site Utilization Plan - Structure

Drawn By:
Ben Mahoney

Date:
10/28/2009

C-002



Marymount University 26th Street Project

Arlington, Virginia

Site Utilization Plan - Interior Finishes

Drawn By:
Ben Mahoney

Date:
10/28/2009

C-003

Appendix C: Detailed Structural Systems Estimate

Square Foundations (Concrete)							
Mark	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
F80	8.00	8.00	2.67	170.67	2.00	341.33	12.64
F85	8.50	8.50	2.67	192.67	4.00	770.67	28.54
F90	9.00	9.00	2.83	229.50	9.00	2065.50	76.50
F95	9.50	9.50	3.00	270.75	3.00	812.25	30.08
F100	10.00	10.00	3.17	316.67	8.00	2533.33	93.83
F105	10.50	10.50	3.33	367.50	9.00	3307.50	122.50
F110	11.00	11.00	3.50	423.50	2.00	847.00	31.37
F115	11.50	11.50	3.50	462.88	1.00	462.88	17.14
						TOTAL	412.61

Combined Foundations (Concrete)							
Mark	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
CF01	27.00	12.00	3.67	1188.00	4.00	4752.00	176.00
CF03	16.00	13.00	4.00	832.00	1.00	832.00	30.81
CF04	14.50	11.00	3.50	558.25	2.00	1116.50	41.35
CF05	12.50	8.00	2.17	216.67	1.00	216.67	8.02
CF06	18.00	9.00	2.83	459.00	4.00	1836.00	68.00
						TOTAL	324.19

Grade Beams (Concrete)							
Mark	Length (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
-	132.00	4.00	1.50	792.00	1.00	792.00	29.33
-	31.00	2.00	1.00	62.00	1.00	62.00	2.30
-	129.00	3.00	1.50	580.50	1.00	580.50	21.50
-	162.00	1.50	1.50	364.50	1.00	364.50	13.50
						TOTAL	66.63

Mat Foundations (Concrete)						
Mark	Area (sf)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
24"	258	2.00	516.00	1.00	516.00	19.11
34"	597.13	2.83	1691.87	1.00	1691.87	62.66
42"	338.36	3.50	1184.26	1.00	1184.26	43.86
54"	13701.25	4.50	61655.63	1.00	61655.63	2283.54
					TOTAL	2409.18

Residential Columns (Concrete)							
Mark	Height (ft.)	Lenght (ft.)	Width (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
101	9.00	2.00	1.33	23.94	7.00	167.58	6.21
102	9.00	2.00	1.33	23.94	7.00	167.58	6.21
103	9.00	2.00	1.33	23.94	7.00	167.58	6.21
104	9.00	2.00	1.33	23.94	7.00	167.58	6.21
105	9.00	2.00	1.33	23.94	7.00	167.58	6.21
106	9.00	2.00	1.33	23.94	7.00	167.58	6.21
107	9.00	2.00	1.33	23.94	7.00	167.58	6.21
108	9.00	2.00	1.33	23.94	7.00	167.58	6.21
109	9.00	2.00	1.33	23.94	7.00	167.58	6.21
110	9.00	2.33	1.17	24.50	4.00	98.00	3.63
111	9.00	2.00	1.33	23.94	7.00	167.58	6.21
112	9.00	2.00	1.33	23.94	7.00	167.58	6.21
113	9.00	2.00	1.33	23.94	7.00	167.58	6.21
114	9.00	2.00	1.33	23.94	7.00	167.58	6.21
115	9.00	2.00	1.33	23.94	7.00	167.58	6.21
117	9.00	2.00	1.33	23.94	7.00	167.58	6.21
118	9.00	2.00	1.33	23.94	7.00	167.58	6.21
119	9.00	2.00	1.33	23.94	7.00	167.58	6.21
120	9.00	2.00	1.33	23.94	7.00	167.58	6.21
121	9.00	2.00	1.33	23.94	7.00	167.58	6.21
122	9.00	2.00	1.33	23.94	7.00	167.58	6.21
123	9.00	2.00	1.00	18.00	4.00	72.00	2.67
124	9.00	2.00	1.33	23.94	7.00	167.58	6.21
125	9.00	2.00	1.33	23.94	7.00	167.58	6.21
126	9.00	2.33	1.17	24.50	7.00	171.50	6.35
127	9.00	2.33	1.17	24.50	7.00	171.50	6.35
128	9.00	2.33	1.17	24.50	7.00	171.50	6.35
129	9.00	2.33	1.17	24.50	7.00	171.50	6.35
130	9.00	2.00	1.33	23.94	7.00	167.58	6.21
131	9.00	2.33	1.17	24.53	7.00	171.74	6.36
132	9.00	2.33	1.17	24.53	7.00	171.74	6.36
133	9.00	2.33	1.17	24.53	7.00	171.74	6.36
134	9.00	2.00	1.33	23.94	7.00	167.58	6.21
135	9.00	2.00	1.33	23.94	7.00	167.58	6.21
136	9.00	2.00	1.33	23.94	7.00	167.58	6.21
137	9.00	2.00	1.33	23.94	7.00	167.58	6.21
138	9.00	2.33	1.17	24.53	7.00	171.74	6.36
139	9.00	2.33	1.17	24.53	7.00	171.74	6.36
140	9.00	2.33	1.17	24.53	7.00	171.74	6.36
141	9.00	2.33	1.17	24.53	7.00	171.74	6.36
142	9.00	2.33	1.17	24.53	7.00	171.74	6.36
143	9.00	2.33	1.17	24.53	7.00	171.74	6.36
144	9.00	2.33	1.17	24.53	7.00	171.74	6.36
145	9.00	2.33	1.17	24.53	7.00	171.74	6.36
146	9.00	2.33	1.17	24.53	7.00	171.74	6.36
147	9.00	2.33	1.17	24.53	7.00	171.74	6.36
148	9.00	2.33	1.17	24.53	7.00	171.74	6.36
149	9.00	2.33	1.17	24.53	7.00	171.74	6.36
150	9.00	2.00	1.33	23.94	7.00	167.58	6.21
						TOTAL	300.90

Academic Columns (Concrete)							
Mark	Height (ft.)	Lenght (ft.)	Width (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
201	9.00	2.00	1.33	23.94	4.00	95.76	3.55
202	9.00	2.00	1.33	23.94	4.00	95.76	3.55
203	9.00	2.00	1.33	23.94	7.00	167.58	6.21
204	9.00	2.00	1.33	23.94	7.00	167.58	6.21
205	9.00	2.00	1.33	23.94	7.00	167.58	6.21
206	9.00	2.00	1.33	23.94	4.00	95.76	3.55
207	9.00	2.00	1.33	23.94	4.00	95.76	3.55
208	9.00	2.00	1.33	23.94	7.00	167.58	6.21
209	9.00	2.00	1.33	23.94	7.00	167.58	6.21
210	9.00	2.00	1.33	23.94	7.00	167.58	6.21
211	9.00	2.00	1.33	23.94	7.00	167.58	6.21
212	9.00	2.00	1.33	23.94	7.00	167.58	6.21
213	9.00	2.00	1.33	23.94	7.00	167.58	6.21
214	9.00	2.00	1.33	23.94	7.00	167.58	6.21
215	9.00	2.00	1.33	23.94	7.00	167.58	6.21
216	9.00	2.00	1.33	23.94	7.00	167.58	6.21
217	9.00	2.00	1.33	23.94	7.00	167.58	6.21
218	9.00	2.00	1.33	23.94	7.00	167.58	6.21
219	9.00	2.00	1.33	23.94	3.00	71.82	2.66
219	9.00	2.00		28.26	4.00	113.04	4.19
220	9.00	2.00	1.33	23.94	7.00	167.58	6.21
221	9.00	2.00	1.33	23.94	7.00	167.58	6.21
222	9.00	2.00	1.33	23.94	7.00	167.58	6.21
223	9.00	2.00	1.33	23.94	4.00	95.76	3.55
224	9.00	2.00	1.33	23.94	7.00	167.58	6.21
225	9.00	2.00	1.33	23.94	7.00	167.58	6.21
226	9.00	2.00	1.33	23.94	7.00	167.58	6.21
227	9.00	2.00	1.33	23.94	7.00	167.58	6.21
228	9.00	2.33	1.17	24.53	7.00	171.74	6.36
229	9.00	2.00	1.33	23.94	7.00	167.58	6.21
230	9.00	2.00	1.33	23.94	7.00	167.58	6.21
231	9.00	2.00	1.33	23.94	7.00	167.58	6.21
232	9.00	2.00	1.33	23.94	4.00	95.76	3.55
233	9.00	2.00	1.33	23.94	7.00	167.58	6.21
234	9.00	2.00	1.33	23.94	4.00	95.76	3.55
235	9.00	2.33	1.17	24.53	7.00	171.74	6.36
236	9.00	2.33	1.17	24.53	7.00	171.74	6.36
237	9.00	2.33	1.17	24.53	6.00	147.21	5.45
238	9.00	2.33	1.17	24.53	6.00	147.21	5.45
239	9.00	2.33	1.17	24.53	6.00	147.21	5.45
240	9.00	2.33	1.17	24.53	7.00	171.74	6.36
241	9.00	2.33	1.17	24.53	7.00	171.74	6.36
242	9.00	2.00	1.33	23.94	4.00	95.76	3.55
243	9.00	1.50	1.50	20.25	4.00	81.00	3.00
244	9.00	1.50	1.50	20.25	4.00	81.00	3.00
245	9.00	1.50	1.50	20.25	4.00	81.00	3.00
246	9.00	1.50	1.50	20.25	4.00	81.00	3.00
247	9.00	2.00	1.33	23.94	3.00	71.82	2.66
248	9.00	2.00	1.33	23.94	4.00	95.76	3.55
249	9.00	2.00	1.33	23.94	4.00	95.76	3.55
250	9.00	2.00	1.00	18.00	3.00	54.00	2.00
251	9.00	2.00	1.00	18.00	3.00	54.00	2.00
252	9.00	2.00	1.00	18.00	3.00	54.00	2.00
253	9.00	2.00	1.00	18.00	3.00	54.00	2.00
254	9.00	2.00	1.33	23.94	4.00	95.76	3.55
						TOTAL	271.85

Residential Beams (Concrete)							
Mark	Lenght (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
B101	19.00	0.83	1.33	21.06	6.00	126.35	4.68
B102	18.00	0.83	1.67	25.05	4.00	100.20	3.71
B103	20.00	1.67	1.17	38.89	1.00	38.89	1.44
B104	14.00	1.67	1.17	27.22	1.00	27.22	1.01
B105	22.00	1.67	1.17	42.78	1.00	42.78	1.58
B106	22.00	1.67	1.17	42.78	1.00	42.78	1.58
B107	20.00	1.67	1.17	38.89	1.00	38.89	1.44
B108	20.00	1.67	1.17	38.89	1.00	38.89	1.44
B109	22.00	2.00	2.17	95.33	1.00	95.33	3.53
B110	20.00	2.00	1.50	60.00	1.00	60.00	2.22
B111	20.00	2.00	1.50	60.00	1.00	60.00	2.22
B112	28.00	1.00	1.00	28.00	20.00	560.00	20.74
B113	23.00	1.00	5.58	128.42	1.00	128.42	4.76
						TOTAL	50.36

Academic Beams (Concrete)							
Mark	Lenght (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
B201	19.50	0.83	1.33	21.67	8.00	173.33	6.42
B202	25.00	1.67	1.21	50.35	1.00	50.35	1.86
B203	18.00	1.67	1.21	36.25	1.00	36.25	1.34
B204	24.00	1.67	1.21	48.33	1.00	48.33	1.79
B205	22.00	1.67	1.21	44.31	1.00	44.31	1.64
B206	14.00	1.67	1.21	28.19	1.00	28.19	1.04
B207	41.00	4.00	1.13	184.50	3.00	553.50	20.50
B216	18.00	4.00	2.17	156.00	1.00	156.00	5.78
B220	13.00	0.83	1.33	14.44	12.00	173.33	6.42
B221	12.00	0.83	1.50	15.00	12.00	180.00	6.67
B222	24.00	1.00	1.50	36.00	3.00	108.00	4.00
B223	26.00	1.00	1.50	39.00	14.00	546.00	20.22
B224	14.00	0.83	1.50	17.50	6.00	105.00	3.89
B225	16.00	1.00	2.00	32.00	2.00	64.00	2.37
B226	27.00	2.00	1.00	54.00	6.00	324.00	12.00
B227	85.00	2.00	1.00	170.00	3.00	510.00	18.89
B228	13.00	0.83	1.00	10.83	4.00	43.33	1.60
B229	20.00	0.83	1.33	22.22	2.00	44.44	1.65
B230	16.00	1.33	1.33	28.44	3.00	85.33	3.16
B231	19.50	1.00	2.92	56.88	3.00	170.63	6.32
B233	14.00	1.00	1.50	21.00	3.00	63.00	2.33
						TOTAL	129.90

PT Transfer Beams (Concrete)							
Mark	Lenght (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
B210	42.00	5.00	2.50	525.00	1.00	525.00	19.44
B211	29.00	3.00	2.00	174.00	1.00	174.00	6.44
B212	29.00	3.00	2.00	174.00	1.00	174.00	6.44
B213	22.00	3.00	2.00	132.00	1.00	132.00	4.89
B214	40.00	5.00	2.67	533.33	1.00	533.33	19.75
B215	30.00	4.00	2.17	260.00	2.00	520.00	19.26
B217	36.00	4.00	2.17	312.00	1.00	312.00	11.56
B218	36.00	4.00	2.17	312.00	1.00	312.00	11.56
						TOTAL	99.35

Foundation Walls (Concrete)							
Mark	LF (ft.)	Height (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
0'-8"	58.00	18.00	0.67	696.00	1.00	696.00	25.78
0'-10"	130.50	24.00	0.83	2610.00	1.00	2610.00	96.67
1'-0"	635.92	9.00	1.00	5723.25	4.00	22893.00	847.89
1'-4"	289.33	9.00	1.33	3472.00	4.00	13888.00	514.37
						TOTAL	1362.26

Structural Slabs (Concrete)					
Mark	Area (sf)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total CY
Mud Mat	44882.95	0.17	7480.49	1.00	277.06
G4 Park	40397.00	0.33	13465.67	1.00	498.73
G3 Park	34122.04	0.67	22748.03	1.00	842.52
G3 Res.	11658.00	0.67	7772.00	1.00	287.85
G2 Park	34667.40	0.67	23111.60	1.00	855.99
G2 Res.	11152.00	0.58	6505.33	1.00	240.94
G1 Park	34609.68	0.67	23073.12	1.00	854.56
G1 Res.	11290.00	0.58	6585.83	1.00	243.92
Acad. 1	16503.00	0.75	12377.25	1.00	458.42
Res. 1	11733.84	0.58	6844.74	1.00	253.51
Plaza 1	12200.00	1.00	12200.00	1.00	451.85
Acad. 2	17906.16	0.75	13429.62	1.00	497.39
Res. 2	11735.00	0.58	6845.42	1.00	253.53
Acad. 3	17904.25	0.75	13428.19	1.00	497.34
Res. 3	11735.00	0.58	6845.42	1.00	253.53
Roof Res.	11563.00	0.67	7708.67	1.00	285.51
Roof Acad.	16896.00	0.67	11264.00	1.00	417.19
				TOTAL	7469.83

Shear Walls (Concrete)							
Mark	Height (ft.)	Width (ft.)	Depth (ft.)	Volume (cu. Ft.)	Quantity	Total	Total CY
SW1	76.00	27.50	1.00	2090.00	1.00	2090.00	77.41
SW2	76.00	18.00	1.00	1242.00	1.00	1242.00	46.00
SW3	76.00	18.00	1.00	1168.50	1.00	1168.50	43.28
SW4	76.00	9.50	1.00	722.00	1.00	722.00	26.74
SW5	77.00	19.50	1.00	1501.50	1.00	1501.50	55.61
SW6	77.00	9.25	1.00	712.25	1.00	712.25	26.38
SW7	77.00	9.25	1.00	712.25	1.00	712.25	26.38
SW8	85.00	9.00	1.00	765.00	1.00	765.00	28.33
SW9	85.00	19.50	1.00	1657.50	1.00	1657.50	61.39
SW11	65.00	27.50	0.67	1081.67	1.00	1081.67	40.06
SW12	85.00	9.00	1.00	765.00	1.00	765.00	28.33
SW13	40.00	18.00	1.00	720.00	14.00	10080.00	373.33
						TOTAL	833.25

Squae Foundations (Rebar)											
Mark	Qty.	L (ft.)	W (ft.)	EW Bar	EW qty.	EW (lbs/lf)	NS Bar	NS qty.	NS (lbs/lf)	Wt. (lbs.)	Total (tons)
F80	2.00	8.00	8.00	#8	8.00	2.67	#8	8.00	2.67	341.76	0.34
F85	4.00	8.50	8.50	#8	9.00	2.67	#8	9.00	2.67	408.51	0.82
F90	9.00	9.00	9.00	#9	8.00	3.40	#9	8.00	3.40	489.60	2.20
F95	3.00	9.50	9.50	#9	11.00	3.40	#9	11.00	3.40	710.60	1.07
F100	8.00	10.00	10.00	#9	11.00	3.40	#9	11.00	3.40	748.00	2.99
F105	9.00	10.50	10.50	#9	11.00	3.40	#9	11.00	3.40	785.40	3.53
F110	2.00	11.00	11.00	#10	9.00	4.30	#10	9.00	4.30	851.99	0.85
F115	1.00	11.50	11.50	#10	10.00	4.30	#10	10.00	4.30	989.69	0.49
										TOTAL	12.30

Combined Foundations (Rebar)													
Mark	Qty.	L (ft.)	W (ft.)	Bot. S.	Bot. S. qty.	Bot. S. (lbs./lf)	Bot. L.	Bot. L. qty.	Bot. L. (lbs./lf)	Top L.	Top L. qty.	Top L. (lbs./lf)	Total (tons)
CF01	4.00	26.50	11.50	#10	34.00	4.30	#10	16.00	4.30	#10	16.00	4.30	10.66
CF03	1.00	15.50	12.50	#10	16.00	4.30	#10	14.00	4.30	#10	14.00	4.30	1.36
CF04	2.00	14.00	10.50	#9	16.00	3.40	#9	12.00	3.40	#9	12.00	3.40	1.71
CF05	1.00	12.00	6.00	#8	14.00	2.67	#8	8.00	2.67	#8	8.00	2.67	0.37
CF06	4.00	17.50	8.50	#9	18.00	3.40	#9	8.00	3.40	#9	8.00	3.40	2.94
												TOTAL	17.05

Grade Beams (Rebar)										
Mark	L (ft.)	W (ft.)	T & B	T &B Qty.	T & B (lbs/lf)	Stir.	Stir. (lf)	Stir. (lbs/lf)	Wt. (lbs)	Total (tons)
-	132.00	4.00	#5	5.00	1.04	#6	3.50	1.50	1382.30	0.69
-	31.00	2.00	#5	3.00	1.04				97.00	0.05
-	129.00	3.00	#9	5.00	3.40	#3	7.00	0.38	2532.53	1.27
-	162.00	1.50	#8	6.00	2.67	#3	5.00	0.37	2892.51	1.45
									TOTAL	3.45

Mat Foundations (Rebar)										
Mark	L (ft.)	W (ft.)	L Bar	L Qty	L (lbs/lf)	W Bar	W Qty.	W (lbs/lf)	Qty. (T&B)	Total (tons)
24"	21.50	12.00	#10	12.00	4.30	#10	21.00	4.30	2.00	2.19

Mat Foundations (Rebar)								
Mark	Area (sf.)	Area Comparison	T & B (EW)	T & B (EW) Qty	T & B (EW) (lbs/lf)	Wt. (lbs.)	Mult.	Total (tons.)
34"	597.13	100.00	#10	40.00	4.30	1,721.20	5.97	5.14
42"	338.36	100.00	#10	40.00	4.30	1,721.20	3.38	2.91
54"	13,701.25	100.00	#11	40.00	5.31	2,125.20	137.01	145.59
							TOTAL	155.83

Shear Walls (Rebar)								
Mark	Area (sf.)	Area Comparison	T & B (EW)	T & B (EW) Qty	T & B (EW) (lbs/lf)	Wt. (lbs.)	Mult.	Total (tons.)
SW1	2090.00	100.00	#6	40.00	1.50	600.80	20.90	6.28
SW2	1242.00	100.00	#6	40.00	1.50	600.80	12.42	3.73
SW3	1168.50	100.00	#6	40.00	1.50	600.80	11.69	3.51
SW4	722.00	100.00	#6	40.00	1.50	600.80	7.22	2.17
SW5	1501.50	100.00	#6	40.00	1.50	600.80	15.02	4.51
SW6	712.25	100.00	#6	40.00	1.50	600.80	7.12	2.14
SW7	712.25	100.00	#6	40.00	1.50	600.80	7.12	2.14
SW8	765.00	100.00	#4/#5	40.00	0.86	342.20	7.65	1.31
SW9	1657.50	100.00	#4/#5	40.00	0.86	342.20	16.58	2.84
SW11	1787.50	100.00	#4/#5	40.00	0.86	342.20	17.88	3.06
SW12	765.00	100.00	#4/#5	40.00	0.86	342.20	7.65	1.31
SW13	10080.00	100.00	#5/#6	40.00	1.27	509.00	100.80	25.65
							TOTAL	58.64

Residential Columns (Rebar)										
Mark	L (ft.)	Qty.	Bar	Wt. (lbs./lf)	Bars	Stir.	Stir. (lf)	Stir. (lbs/lf)	Wt. (lbs.)	Total (tons)
4 Bars	9.00	140.00	#9	3.40	4.00	#3	5.50	0.38	19741.68	9.87
6 Bars	9.00	170.00	#9	3.40	6.00	#3	5.50	0.38	34376.04	17.19
8 Bars	9.00	17.00	#10	4.30	8.00	#3	5.50	0.38	5583.28	2.79
10 Bars	9.00	3.00	#10	4.30	10.00	#3	5.50	0.38	1217.65	0.61
12 Bars	9.00	7.00	#11	5.31	12.00	#4	5.50	0.67	4248.09	2.12
									TOTAL	32.58

Academic Columns (Rebar)										
Mark	L (ft.)	Qty.	Bar	Wt. (lbs./lf)	Bars	Stir.	Stir. (lf)	Stir. (lbs/lf)	Wt. (lbs.)	Total (tons)
4 Bars	9.00	140.00	#9	3.40	4.00	#3	5.50	0.38	19741.68	9.87
6 Bars	9.00	108.00	#9	3.40	6.00	#3	5.50	0.38	21838.90	10.92
8 Bars	9.00	32.00	#10	4.30	8.00	#3	5.50	0.38	10509.70	5.25
10 Bars	9.00	12.00	#10	4.30	10.00	#3	5.50	0.38	4870.58	2.44
12 Bars	9.00	18.00	#11	5.31	12.00	#4	5.50	0.67	10923.66	5.46
									TOTAL	33.94

Residential Beams (Rebar)										
Mark	L (ft.)	Qty.	T Bar	Top (lbs./lf)	Bars	Bot. Bar	Bot (lbs./lf)	Bars	Stirrup (lbs)	Total (tons)
B101	19.00	6.00	#7	2.04	2.00	#8	2.67	2.00	3.38	0.73
B102	18.00	4.00	#8	2.67	2.00	#9	3.40	2.00	3.38	0.56
B103	20.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.22
B104	14.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.16
B105	22.00	1.00	#8	2.67	4.00	#10	4.30	4.00	3.38	0.34
B106	22.00	1.00	#9	3.40	4.00	#10	4.30	4.00	3.38	0.38
B107	20.00	1.00	#8	2.67	2.00	#10	4.30	5.00	3.38	0.30
B108	20.00	1.00	#8	2.67	2.00	#10	4.30	5.00	3.38	0.30
B109	22.00	1.00	#9	3.40	4.00	#10	4.30	6.00	3.38	0.47
B110	20.00	1.00	#9	3.40	4.00	#10	4.30	6.00	3.38	0.43
B111	20.00	1.00	#9	3.40	4.00	#10	4.30	6.00	3.38	0.43
B112	28.00	20.00	#7	2.04	2.00	#7	2.04	2.00	3.38	3.24
B113	23.00	1.00	#9	3.40	2.00	#10	4.30	2.00	3.38	0.22
									TOTAL	7.77

Academic Beams (Rebar)										
Mark	L (ft.)	Qty.	T Bar	Top (lbs./lf)	Bars	Bot. Bar	Bot (lbs./lf)	Bars	Stirrup (lbs/lf)	Total (tons)
B201	19.50	8.00	#7	2.44	2.00	#8	2.67	2.00	3.38	1.06
B202	25.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.28
B203	18.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.20
B204	24.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.27
B205	22.00	1.00	#8	2.67	2.00	#9	3.40	4.00	3.38	0.25
B206	14.00	1.00	#8	2.67	2.00	#9	3.40	2.00	3.38	0.11
B207	41.00	3.00	#7	2.44	4.00	#7	2.44	4.00	3.38	1.41
B216	18.00	1.00	#9	3.40	6.00	#11	5.31	10.00	3.38	0.69
B220	13.00	12.00	#8	2.67	2.00	#8	2.67	2.00	3.38	1.10
B221	12.00	12.00	#8	2.67	2.00	#8	2.67	2.00	3.38	1.01
B222	24.00	3.00	#8	2.67	2.00	#8	2.67	2.00	3.38	0.51
B223	26.00	14.00	#8	2.67	2.00	#8	2.67	2.00	3.38	2.56
B224	14.00	6.00	#8	2.67	2.00	#8	2.67	2.00	3.38	0.59
B225	16.00	2.00	#8	2.67	2.00	#8	2.67	2.00	3.38	0.23
B226	27.00	6.00	#8	2.67	2.00	#8	2.67	2.00	3.38	1.14
B227	85.00	3.00	#8	2.67	2.00	#8	2.67	2.00	3.38	1.79
B228	13.00	4.00	#8	2.67	2.00	#8	2.67	2.00	3.38	0.37
B229	20.00	2.00	#7	2.44	2.00	#8	2.67	2.00	3.38	0.27
B230	16.00	3.00	#8	2.67	2.00	#9	3.40	2.00	3.38	0.37
B231	19.50	3.00	#9	3.40	3.00	#10	4.30	3.00	3.38	0.77
B233	14.00	3.00	#8	2.67	2.00	#8	2.67	2.00	3.38	0.30
									TOTAL	15.27

PT Transfer Beams (Rebar)										
Mark	L (ft.)	Qty.	T Bar	Top (lbs./lf)	Bars	Bot. Bar	Bot (lbs./lf)	Bars	Stirrup (lbs/lf)	Total (tons)
B210	42.00	1.00	#8	2.67	8.00	#8	2.67	8.00	3.56	0.97
B211	29.00	1.00	#8	2.67	4.00	#8	2.67	4.00	3.56	0.36
B212	29.00	1.00	#8	2.67	4.00	#8	2.67	4.00	3.56	0.36
B213	22.00	1.00	#8	2.67	4.00	#8	2.67	4.00	3.56	0.27
B214	40.00	1.00	#8	2.67	8.00	#8	2.67	8.00	3.56	0.93
B215	30.00	2.00	#8	2.67	6.00	#8	2.67	6.00	3.56	1.07
B217	36.00	1.00	#8	2.67	4.00	#8	2.67	6.00	3.56	0.54
B218	36.00	1.00	#8	2.67	4.00	#8	2.67	6.00	3.56	0.54
									TOTAL	5.05

Foundation Walls (Rebar)								
Mark	Area (sf.)	Area Comparison	T & B (EW)	T & B (EW) Qty	T & B (EW) (lbs/lf)	Wt. (lbs.)	Mult.	Total (tons.)
0'-8"	1044.00	100.00	#4/#5	30.00	0.79	237.53	10.44	1.24
0'-10"	3132.00	100.00	#4/#6	20.00	1.09	217.00	31.32	3.40
1'-0"	22893.00	100.00	#4/#7/#8/#8	40.00	2.02	807.20	228.93	92.40
1'-4"	10416.00	100.00	#5/#6	40.00	1.27	509.00	104.16	26.51
							TOTAL	123.54

Structural Slabs (Rebar)								
Mark	Area (sf.)	Area Comparison	T & B (EW)	T & B (EW) Qty	T & B (EW) (lbs/lf)	Wt. (lbs.)	Mult.	Total (tons.)
G4 Park	40397.00	100	-	-	-	-	-	-
G3 Park*	34122.04	100.00	#5	24.00	1.04	250.32	341.22	42.71
G3 Res.	11658.00	100.00	#5	24.00	1.04	250.32	116.58	14.59
G2 Park*	34667.40	100.00	#5	24.00	1.04	250.32	346.67	43.39
G2 Res.	11152.00	100.00	#4/#5	34.00	0.79	269.20	111.52	15.01
G1 Park*	34609.68	100.00	#5	24.00	1.04	250.32	346.10	43.32
G1 Res.	11290.00	100.00	#4/#5	34.00	0.79	269.20	112.90	15.20
Acad. 1	16503.00	100.00	#5	48.00	1.04	500.64	165.03	41.31
Res. 1	11733.84	100.00	#4/#5	34.00	0.79	269.20	117.34	15.79
Plaza 1	12200.00	100.00	#6	48.00	1.50	720.96	122.00	43.98
Acad. 2	17906.16	100.00	#5	48.00	1.04	500.64	179.06	44.82
Res. 2	11735.00	100.00	#4/#5	34.00	0.79	269.20	117.35	15.80
Acad. 3	17904.25	100.00	#5	48.00	1.04	500.64	179.04	44.82
Res. 3	11735.00	100.00	#4/#5	34.00	0.79	269.20	117.35	15.80
Roof Res.	11563.00	100.00	#4/#5	34.00	0.79	269.20	115.63	15.56
Roof Acad.	16896.00	100.00	#4/#5	34.00	0.79	269.20	168.96	22.74
*epoxy coated Rebar							TOTAL	434.83

Mat Foundations (Formwork)			
Mark	LF	Depth (ft.)	Area (sf)
24"	67.00	2.00	134.00
34"	97.25	2.83	275.54
42"	73.00	3.50	255.51
54"	506.33	4.50	2278.49
		TOTAL	2943.54

Shear Walls (Formwork)			
Mark	LF	Height (ft.)	Area (sf)
SW1	24.00	76.00	1824.00
SW2	24.00	76.00	1824.00
SW3	24.00	76.00	1824.00
SW4	21.33	76.00	1621.31
SW5	24.25	77.00	1867.25
SW6	24.25	77.00	1867.25
SW7	24.25	77.00	1867.25
SW8	24.25	85.00	2061.25
SW9	24.25	85.00	2061.25
SW11	24.25	85.00	2061.25
SW12	17.83	85.00	1515.83
SW13	476.00	40.00	19040.00
		TOTAL	39434.64

Residential Columns (Formwork)				
Mark	LF	Height (ft.)	Quantity	Area (sf)
101	6.66	9.00	7.00	419.58
102	6.66	9.00	7.00	419.58
103	6.66	9.00	7.00	419.58
104	6.66	9.00	7.00	419.58
105	6.66	9.00	7.00	419.58
106	6.66	9.00	7.00	419.58
107	6.66	9.00	7.00	419.58
108	6.66	9.00	7.00	419.58
109	6.66	9.00	7.00	419.58
110	7.00	9.00	4.00	252.00
111	6.66	9.00	7.00	419.58
112	6.66	9.00	7.00	419.58
113	6.66	9.00	7.00	419.58
114	6.66	9.00	7.00	419.58
115	6.66	9.00	7.00	419.58
117	6.66	9.00	7.00	419.58
118	6.66	9.00	7.00	419.58
119	6.66	9.00	7.00	419.58
120	6.66	9.00	7.00	419.58
121	6.66	9.00	7.00	419.58
122	6.66	9.00	7.00	419.58
123	6.00	9.00	4.00	216.00
124	6.66	9.00	7.00	419.58
125	6.66	9.00	7.00	419.58
126	7.00	9.00	7.00	441.00
127	7.00	9.00	7.00	441.00
128	7.00	9.00	7.00	441.00
129	7.00	9.00	7.00	441.00
130	6.66	9.00	7.00	419.58
131	7.00	9.00	7.00	441.00
132	7.00	9.00	7.00	441.00
133	7.00	9.00	7.00	441.00
134	6.66	9.00	7.00	419.58
135	6.66	9.00	7.00	419.58
136	6.66	9.00	7.00	419.58
137	6.66	9.00	7.00	419.58
138	7.00	9.00	7.00	441.00
139	7.00	9.00	7.00	441.00
140	7.00	9.00	7.00	441.00
141	7.00	9.00	7.00	441.00
142	7.00	9.00	7.00	441.00
143	7.00	9.00	7.00	441.00
144	7.00	9.00	7.00	441.00
145	7.00	9.00	7.00	441.00
146	7.00	9.00	7.00	441.00
147	7.00	9.00	7.00	441.00
148	7.00	9.00	7.00	441.00
149	7.00	9.00	7.00	441.00
150	6.66	9.00	7.00	419.58
			TOTAL	20595.24

Academic Columns (Formwork)				
Mark	LF	Height (ft.)	Quantity	Area (sf)
201	6.66	9.00	4.00	239.76
202	6.66	9.00	4.00	239.76
203	6.66	9.00	7.00	419.58
204	6.66	9.00	7.00	419.58
205	6.66	9.00	7.00	419.58
206	6.66	9.00	4.00	239.76
207	6.66	9.00	4.00	239.76
208	6.66	9.00	7.00	419.58
209	6.66	9.00	7.00	419.58
210	6.66	9.00	7.00	419.58
211	6.66	9.00	7.00	419.58
212	6.66	9.00	7.00	419.58
213	6.66	9.00	7.00	419.58
214	6.66	9.00	7.00	419.58
215	6.66	9.00	7.00	419.58
216	6.66	9.00	7.00	419.58
217	6.66	9.00	7.00	419.58
218	6.66	9.00	7.00	419.58
219	6.66	9.00	3.00	179.82
219	4.00	9.00	4.00	144.00
220	6.66	9.00	7.00	419.58
221	6.66	9.00	7.00	419.58
222	6.66	9.00	7.00	419.58
223	6.66	9.00	4.00	239.76
224	6.66	9.00	7.00	419.58
225	6.66	9.00	7.00	419.58
226	6.66	9.00	7.00	419.58
227	6.66	9.00	7.00	419.58
228	7.00	9.00	7.00	441.00
229	6.66	9.00	7.00	419.58
230	6.66	9.00	7.00	419.58
231	6.66	9.00	7.00	419.58
232	6.66	9.00	4.00	239.76
233	6.66	9.00	7.00	419.58
234	6.66	9.00	4.00	239.76
235	7.00	9.00	7.00	441.00
236	7.00	9.00	7.00	441.00
237	7.00	9.00	6.00	378.00
238	7.00	9.00	6.00	378.00
239	7.00	9.00	6.00	378.00
240	7.00	9.00	7.00	441.00
241	7.00	9.00	7.00	441.00
242	6.66	9.00	4.00	239.76
243	6.00	9.00	4.00	216.00
244	6.00	9.00	4.00	216.00
245	6.00	9.00	4.00	216.00
246	6.00	9.00	4.00	216.00
247	6.66	9.00	3.00	179.82
248	6.66	9.00	4.00	239.76
249	6.66	9.00	4.00	239.76
250	6.00	9.00	3.00	162.00
251	6.00	9.00	3.00	162.00
252	6.00	9.00	3.00	162.00
253	6.00	9.00	3.00	162.00
254	6.66	9.00	4.00	239.76
			TOTAL	18481.50

Residential Beams(Formwork)				
Mark	**Surface Area**	**Depth (ft.)**	**Quantity**	**Area (sf)**
B101	68.59	1.33	6.00	411.54
B102	77.90	1.67	4.00	311.61
B103	83.89	1.17	1.00	83.89
B104	59.89	1.17	1.00	59.89
B105	91.89	1.17	1.00	91.89
B106	91.89	1.17	1.00	91.89
B107	83.89	1.17	1.00	83.89
B108	83.89	1.17	1.00	83.89
B109	148.00	2.17	1.00	148.00
B110	106.00	1.50	1.00	106.00
B111	106.00	1.50	1.00	106.00
B112	86.00	1.00	20.00	1720.00
B113	291.00	5.58	1.00	291.00
			TOTAL	**3589.49**

Academic Beams(Formwork)				
Mark	**Surface Area**	**Depth (ft.)**	**Quantity**	**Area (sf)**
B201	70.47	1.33	8.00	563.78
B202	106.11	1.21	1.00	106.11
B203	77.53	1.21	1.00	77.53
B204	102.03	1.21	1.00	102.03
B205	93.86	1.21	1.00	93.86
B206	61.19	1.21	1.00	61.19
B207	265.25	1.13	3.00	795.75
B216	167.33	2.17	1.00	167.33
B220	47.72	1.33	12.00	572.67
B221	48.50	1.50	12.00	582.00
B222	99.00	1.50	3.00	297.00
B223	107.00	1.50	14.00	1498.00
B224	56.17	1.50	6.00	337.00
B225	84.00	2.00	2.00	168.00
B226	112.00	1.00	6.00	672.00
B227	344.00	1.00	3.00	1032.00
B228	38.50	1.00	4.00	154.00
B229	72.22	1.33	2.00	144.44
B230	67.56	1.33	3.00	202.67
B231	139.08	2.92	3.00	417.25
B233	59.00	1.50	3.00	177.00
			TOTAL	**8221.61**

PT Transfer Beams (Formwork)				
Mark	Surface Area	Depth (ft.)	Quantity	Area (sf)
B210	445.00	2.50	1.00	445.00
B211	215.00	2.00	1.00	215.00
B212	215.00	2.00	1.00	215.00
B213	166.00	2.00	1.00	166.00
B214	440.00	2.67	1.00	440.00
B215	267.33	2.17	2.00	534.67
B217	317.33	2.17	1.00	317.33
B218	317.33	2.17	1.00	317.33
			TOTAL	2650.33

Foundation Walls(Formwork)			
Mark	LF	Height (ft.)	Area (sf)
0'-8"	116.00	18.00	2088.00
0'-10"	263.00	24.00	6312.00
1'-0"	635.92	36.00	22893.00
1'-4"	289.33	36.00	10416.00
		TOTAL	41709.00